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MACKENZIE VALLEY PIPELINE INQUIRY

IN THE MATTER OF APPLICATIONS BY EACH OF

- (a) CANADIAN ARCTIC GAS PIPELINE LIMITED FOR A RIGHT-OF-WAY THAT MIGHT BE GRANTED ACROSS CROWN LANDS WITHIN THE YUKON TERRITORY AND THE NORTHWEST TERRITORIES, and
- (b) FOOTHILLS PIPE LINES LTD. FOR A RIGHT-OF-WAY THAT MIGHT BE GRANTED ACROSS CROWN LANDS WITHIN THE NORTHWEST TERRITORIES

FOR THE PURPOSE OF A PROPOSED MACKENZIE VALLEY PIPELINE

and

IN THE MATTER OF THE SOCIAL, ENVIRONMENTAL AND ECONOMIC IMPACT REGIONALLY OF THE CONSTRUCTION, OPERATION AND SUBSEQUENT ABANDONMENT OF THE ABOVE PROPOSED PIPELINE

(Before the Honourable Mr. Justice Berger, Commissioner)

Yellowknife, N.W.T.

October 5, 1976

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PROCEEDINGS AT INQUIRY

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Volume 193

CANADIAN ARCTIC  
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APPEARANCES:

Mr. Ian G. Scott, Q.C.,  
 Mr. Stephen T. Goudge,  
 Mr. Alick Ryder, and  
 Mr. Ian Roland, for Mackenzie Valley Pipeline Inquiry;

Mr. Pierre Genest, Q.C.,  
 Mr. Jack Marshall,  
 Mr. Darryl Carter,  
 Mr. J.T. Steeves, and for Canadian Arctic Gas Pipeline Limited;  
 Mr. Gerry Ziskrout,

Mr. Reginald Gibbs, Q.C.,  
 Mr. Alan Hollingworth,  
 Mr. John W. Lutes, and for Foothills Pipe Lines Ltd.;  
 Mr. Ian MacLachlan,  
 Mr. Russell Anthony,  
 Prof. Alastair Lucas and  
 Mr. Garth Evans, for Canadian Arctic Resources Committee;

Mr. Glen W. Bell and  
 Mr. Gerry Sutton, for Northwest Territories Indian Brotherhood, and Metis Association of the Northwest Territories;

Mr. John Bayly and  
 Miss Lesley Lane, for Inuit Tapirisat of Canada, and The Committee for Original Peoples Entitlement;

Mr. Ron Veale and  
 Mr. Allen Lueck, for The Council for the Yukon Indians;

Mr. Carson Templeton, for Environment Protection Board;

Mr. David H. Searle, Q.C.  
 for Northwest Territories Chamber of Commerce;

Mr. Murray Sigler and  
 Mr. David Reesor, for The Association of Municipalities;

Mr. John Ballem, Q.C., for Producer Companies (Imperial, Shell & Gulf);

Mrs. Joanne MacQuarrie, for Mental Health Association of the Northwest Territories.

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347  
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 Vol. 193





I N D E X Page

WITNESSES FOR ENVIRONMENTAL PROTECTION BOARD:

Carson H. TEMPLETON	
D.H. DOYLE	
H. HERNANDEZ	
- In Chief	30064
- Cross-Examination by Mr. Bayly	30206
- Cross-Examination by Mr. Veale	30235
- Cross-Examination by Mr. Steeves	30248

EXHIBITS:

832	Letter from L.C. Bliss, Coastal Route vs Interior Route	30161
833	Statement of Evidence C.H. Templeton	30161
834	Map, Recommendations for Site-Specific Terms & Conditions re CAGPL Proposal	30264
835	Map, Recommendations for Site-Specific Terms & Conditions re Foothills Proposal	30264
836	Letter from V. Geist, May 25, 1976	30264-A
827	Preparation of Site-Specific Recommen- dations for Proposed Pipeline by Applicants	30264-A





1 Yellowknife, N.W.T.

2 October 5, 1976.

3 (PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

4 MR. GOUDGE: I think we're  
5 prepared to begin, sir. The evidence for today  
6 will be Mr. Templeton and his two associates, Mr.  
7 Doyle and Mr. Hernandez.

8 Before they begin, sir,  
9 let me just briefly for the record set out the rest  
10 of the week, the schedule. We will complete this  
11 panel today in chief and cross-examination.

12 Tomorrow I propose that we  
13 begin with Mr. Butters, who is for the Municipalities  
14 and didn't appear with their group last week. Mr.  
15 Sigler advised me yesterday that they would be dis-  
16 tributing Mr. Butters' evidence in chief today.

17 That will be followed by Mr.  
18 Hemstock of Arctic Gas dealing with the Arctic Gas  
19 contingency plan and their corridor evidence, and  
20 following that, there will be the Beaufort-delta  
21 people whose evidence I distributed to the parties  
22 yesterday. That's Wednesday.

23 Thursday and Friday we  
24 propose to devote to northern construction, beginning  
25 with the Foothills northern 50-mile panel, which Mr.  
26 Hollingworth has distributed, and concluding with the  
27 Arctic Gas panel, which was distributed yesterday.  
28 by Mr. Ziskrout. That would conclude the week.

29 In addition, I have a letter  
30 that Dr. Bliss of the Environment Protection Board has





Templeton, Doyle, Hernandez  
In Chief

1 written to the Inquiry on his own behalf and on behalf  
2 of Mr. Thompson. It arrived a couple of days ago.  
3 I would propose to table it. It deals with certain  
4 matters that he was asked about when he was here in  
5 January, comparing the environmental impact of the  
6 coastal and interior routes. It's his personal  
7 response, not a response, of course, of the Board.  
8 I would propose to table that and perhaps if any  
9 participants want copies, the secretary could make  
10 them and distribute them later today.

11 THE COMMISSIONER: Miss  
12 Carriere, I'd like a copy of that. Make sure you  
13 get one for me.

14 MR. GOUDGE: I think, sir, I  
15 can turn the proceedings over to Mr. Templeton, who  
16 will act as his own counsel.

17 MR. TEMPLETON: Mr. Commissioner,  
18 I would like to present first the need to be specific  
19 in the terms and conditions of the project, and next  
20 to talk about the recommendations for site specific  
21 terms and conditions in an Atlas, and then talk about  
22 the recommendations for a single agency, its key  
23 activities, manpower and schedule to control the  
24 Mackenzie Valley project, and fourthly, my  
25 recommendations for a land use plan, for the Western  
26 Arctic.

27  
28 CARSON H. TEMPLETON, resumed:

29 D.H. DOYLE,

30 H. HERNANDEZ, sworn:



Templeton, Doyle, Hernandez  
In Chief

WITNESS TEMPLETON: As a

consultant I frequently have to ask myself what the client really wants. What are his basic goals in regard to the matter on which he is consulting me? And his goals are often not readily apparent. He is often so steeped in the problem, he forgets to explain the eventual goal that he wishes to reach or achieve.

What goals did the Government of Canada have in mind when it set up this Inquiry?

The terms of reference said that you, Mr. Commissioner, should enquire into the proposed pipeline activities, and after doing so you should report upon the terms and conditions that should be imposed upon the pipeline company with regard to social, environmental and regional economic aspects, having due regard to the expanded pipeline guidelines.

Although it has not said so, I think the goal of the Federal Government is to approve the pipeline, but in doing so to protect the social and environmental fabric of the north, to enhance its regional economic fabric. If this is true, then there are many things that must be done. The recommending of the terms and conditions and the incorporation of these terms and conditions into the actual construction, operation and abandonment of the pipeline are but a small part of the task of realizing this goal.

Our job, as participants of this Inquiry, however, is limited to recommending to you, Mr. Commissioner, terms and conditions. But





Templeton, Doyle, Hernandez  
In Chief

1 this is the beginning, and let us each do it as well  
2 as we possibly can because it is the basic material  
3 for achieving the original goal. If we fail, others  
4 will surely fail; and if others fail, we will all  
5 have failed.

6 Hopefully, the Federal  
7 Government will take your terms and conditions and  
8 those of the National Energy Board and order the  
9 successful applicant to obey them. It will be the  
10 permittee's job to put them into effect and the job  
11 of the Governments of Canada and of the Territories  
12 to see that they are put into effect.

13 Our job, as participants,  
14 is to outline for you our predictions as to the social,  
15 environmental, and regional economic impacts of the  
16 project on the north and to outline the terms and  
17 conditions that will limit the impacts to those that  
18 were predicted. How successful the terms and condi-  
19 tions are will certainly depend on the dedication,  
20 skill and knowledge of the permittee's forces and the  
21 regulatory control staff, but it will very definitely  
22 depend on the extent to which these terms and conditions  
23 are themselves specific.

24 I have been involved in the  
25 construction industry all my working life. In addi-  
26 tion, Templeton Engineering Company has approved all  
27 provincial gas pipelines in Manitoba from 1959 to  
28 the present time on behalf of the Manitoba Public  
29 Utilities Board.

30 From this experience I have





Templeton, Doyle, Hernandez  
In Chief

1 gained a reasonable appreciation of the way the in-  
2 dustry works and what is needed to control it.

3 When a contractor gives a  
4 purchase order to a supplier, he does not ask for a  
5 machine that will "maximize production". He wants a  
6 specific machine and he wants it on a specific date  
7 at a specific destination, and with certain  
8 specific items such as a certain type of steel in  
9 the side boom.



Doyle, Templeton, Hernandez  
In Chief

1 When a pipeline company orders  
2 pipe, he specifies in detail the metallurgical properties,  
3 the tests that will measure the properties he wants,  
4 the quantity of pipe, delivery dates, and the price he  
5 will pay. He does not say "good quality pipe delivered  
6 as soon as practical at a price to be determined later".

7 Yet many people expect to order  
8 environmental protection in general terms such as  
9 "minimize disturbance of fish spawning beds" or "avoid  
10 low flying over nesting geese areas". Sorry, I think  
11 I've said that wrong. I don't want you to say minimize  
12 the disturbance of fish spawning beds or avoid flying  
13 low over nesting geese areas because they are too  
14 general. The problem with such general terms and  
15 conditions is that the construction or transportation  
16 company employee does not know how to perform such  
17 requests. He does not know what is behind the request  
18 and he has no training to enable him to figure it out.  
19 In many cases, he does not care about the social or  
20 environmental problems. His job is to get the work  
21 done according to schedule.

22 Mr. David W. Norton, a  
23 biologist with the Joint State/Federal Fish and  
24 Wildlife Advisory Team, writing in a carefully con-  
25 sidered article in the Summer/Fall 1975 edition of the  
26 Alaska Conservation Review said, "Alyeska management  
27 and senior engineers genuinely want this construction  
28 project to be an environmental model. But it does not  
29 necessarily follow that their personnel place enough  
30 emphasis on this aspect of the project, nor that they





Templeton, Doyle, Hernandez  
In Chief

have a clear idea of how to accomplish what we all want". He says this even though the Department of Interior Stipulations are quite specific, at least as far as they went. So, it will be with this project, whoever builds it. The construction people have not put environment protection on their list of important things. They will not read these transcripts, nor the exhibits. In the wintertime, they will not even recognize what some of the terms and conditions are all about because the effect of their actions will not show up until summertime.

They do understand clear, concise, written orders. Those are the tools of their trade. And they understand penalties, particularly when it looks like a regulatory body is going to envoke them.

The pipeline companies understand and are used to:  
Code Z184, the gas pipeline code, and others.  
Regulatory board orders.  
Money budgets.  
Time budgets.  
Supervising contractors and suppliers.  
Law.  
General pipelining practice.

The contractors understand and are used to:  
Plans.  
Specification.  
Time budgets.





Templeton, Doyle, Hernandez  
In Chief

1 Money budgets.

2 Union agreements.

3 Being supervised for the quality of the product.

4 General pipelining practice.

5 The suppliers are used to:

6 Codes.

7 Purchase orders.

8 The transportation companies

9 are used to:

10 Government regulations.

11 Purchase orders.

12 The unions are used to:

13 Union-employer agreements.

14 You will note that in this

15 list nearly all of the items are formal documents.

16 You will also note that none of the items include  
17 environmental considerations. Some day they probably  
18 will but not today. But you will note that these  
19 types of documents deal in specifics.

20 Some of the evidence seems

21 to indicate that the environmental inspectors can  
22 magically produce in the field orders that will be  
23 obeyed and will protect the environment. Miracles like  
24 that do not occur. If the experts here in the quiet  
25 comfort of these hearings cannot draft clear statements  
26 of what should and should not be done, how can an  
27 inspector be an instant expert in several disciplines  
28 while he is being harassed by the bull-of-the-woods  
29 construction superintendents, engineers, his own head  
30 office to say nothing of the camp logistics problems,



Templeton, Doyle, Hernandez  
In Chief

1 whiskey, friendships and other hazards that befall  
2 and inspector?

3 I think we have a job to make  
4 specific recommendations to you about dates, altitudes  
5 of flights, velocities, distances, and specific do's  
6 and dont's.

7 I recognize that nature does  
8 not produce certain phenomena on exact dates, such as  
9 freeze-up and break-up and that everytime you mention  
10 a date for setting limits on an action, or a distance  
11 to be maintained or an elevation to be adhered to,  
12 that someone will be able to show you that that date  
13 should not apply in all cases.

14 You sir, will be faced with  
15 the choice between drafting specific directions that  
16 can be criticized, or drafting non-specific directions  
17 that will draw criticism only from those who will be  
18 monitoring the success of the environment protection  
19 measures.  
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Templeton, Doyle,  
Hernandez  
In Chief

There are those who will say that if certain basic principles of environment protection are presented as terms and conditions, then those principles, plus the transcripts, plus the exhibits, will provide the information needed for the government inspector to administer the permit in the conditions that occur as construction proceeds. As a person who has spent his working life designing and supervising construction jobs, I disagree completely. The inspector has a very difficult job even with a specific set of terms and conditions. He is pitted against a construction operation that is highly organized, very large, very expensive and run by, of necessity, very forceful people.

To give the environmental inspector a set of 300 books and some general recommendations and expect him to be able to achieve environment protection is like putting a junior biologist into Imperial Oil and expecting him to sell management on gas production from pig manure.

In my opinion the terms and conditions must be specific. It is much easier to modify a specific recommendation than it is to create one once the wheels have been set in motion.

Finally, Mr. Commissioner, specific terms and conditions must be available at the outset. As soon as the permit is given the pipeline company will be making commitments, and ordering material. You may have read the press release of Canadian Arctic Gas noting their commitment to Steelco



Templeton, Doyle,  
Hernandez  
In Chief

1 for steel pipe. Supply contracts, construction contracts  
2 and the transportation contracts must also be neg-  
3 otiated and entered into.

4 If the environmental  
5 terms and conditions are available before commitments  
6 are made and if they are specific, they can be in-  
7 cluded in the first draft of the contract or in the  
8 purchase order. If they're not included initially,  
9 arguments, delays, and demands for more money will be  
10 made against the pipeline company. The pipeline  
11 company in turn will harass the regulatory body for  
12 having made such an unreasonable last minute demand  
13 in the first place.

14 It is to the permittee's  
15 advantage to know precisely what he has to do, and  
16 what is acceptable and what is not acceptable and what  
17 penalties are, if he does not do it.

18 Needless to say, it is  
19 to the advantage of the Regulatory Agencies' staff,  
20 as well, to have clear concise regulations to admini-  
21 ster.

22 My purpose in requesting  
23 the time to make this presentation is to plead for  
24 each participant, including the applicants, to be as  
25 specific as possible in defining the terms and con-  
26 ditions for the project.

27 Now I would like to  
28 turn to the second subject. I'd like to make some --  
29 make some recommendations for site specific terms and  
30 conditions.





Templeton, Doyle,  
Hernandez  
In Chief

1 THE COMMISSIONER: Excuse  
2 me Mr. Templeton. While I think of it. If my direc-  
3 tion Commission Council and his staff under Dr. Fyle's  
4 supervision are developing a comprehensive set of  
5 terms and conditions that they'll make available to  
6 all the participants including you in the middle of  
7 the month. And then the proposal is, that, all the  
8 other participants should develop their own terms  
9 and conditions. I -- it's my suspicion that -- I  
10 shouldn't put it in -- it's my surmise, let's not  
11 say suspicion. That's a word with connotations that  
12 aren't altogether happy. It's my surmise that it is  
13 likely that only Commission Council will have developed  
14 a comprehensive set of terms and conditions, but the  
15 proposal is, that everybody should come back here on  
16 November 8th for a week and challenge them, modify  
17 them, shoot holes in them, support them, whatever  
18 and I just wanted to make sure that you would -- you  
19 would be coming back on November -- what is it --  
20 November the 15th to participate in that exercise.

21 WITNESS TEMPLETON: These  
22 would be available on on November the 8th and then --  
23 the hearing would be on the 15th?

24 THE COMMISSIONER: No, the  
25 Commission Council's terms and conditions. It's  
26 difficult for me to tell everybody else to do these  
27 things, but I've some limited control over the people  
28 that work for me. The Commission Council recommenda-  
29 tions should be out the middle of this month. Made  
30 available to you and all the other participants and



1 made public and then on November 15th, we will come  
2 back here and all of you can take a run at them. I  
3 just wanted to make sure that you felt welcome and  
4 felt entirely free to come back and participate in  
5 that exercise.

6 MR. GOUDGE: I should say that  
7 I spoke to Mr. Templeton about that this morning and  
8 he indicated that he would be here.

9 WITNESS TEMPLETON: And he  
10 asked that I not speak too long this time. Yes I'll  
11 be back.

12 THE COMMISSIONER: Carry on  
13 sir, sorry to interrupt.

14 WITNESS TEMPLETON:  
15 In the construction  
16 industry, a construction contract is an agreement  
17 between the contractor and the owner which spells out  
18 the responsibilities, payments, penalties, et cetera  
19 of each party. To this agreement are appended general  
20 conditions, detailed plans and specifications and codes  
21 which define the quality required in the completed  
22 works.

23 This convention is well  
24 understood in the construction industry, and therefore,  
25 if environment protection measures are to be most  
26 effective, they should fit in with the convention as  
27 closely as possible. The mass of environmental data,  
28 recommendations, suggestions, orders, cautions and  
29 concerns generated by these hearings can not be  
30 assembled, interpreted and used in its scattered form





Templeton, Doyle,  
Hernandez  
In Chief

1 by the industry. And I realize, that you, Mr.  
2 Commissioner, will translate this into terms and  
3 conditions but I think we all have -- may have diff-  
4 erent ideas about the detail that would be provided  
5 in the terms and conditions. I recommend that your  
6 terms and conditions include a general condition type,  
7 in a form similar to the Environment Protection Board's  
8 Environmental Code in a regional and site specific  
9 set of terms and conditions similiar to the atlas  
10 that Mr. Hernandez will present shortly. Perhaps I  
11 should spend a few minutes outlining these two forms  
12 of terms and conditions and try to relate these to the  
13 construction industry documents that are in common  
14 usage. Because the pipeline industry is familiar with  
15 construction codes, the introduction of an environ-  
16 mental code is a practical way of including the new  
17 environmental dimension needed in the project such as  
18 this.  
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Templeton, Doyle, Hernandez  
In Chief

1 This code should clearly set  
2 out in one document the level of performance required  
3 of the permittee and the mechanisms which the govern-  
4 ment intends to use to see that this performance is  
5 achieved. This code should provide a clear definition  
6 of criteria for, and standards of, environment protec-  
7 tion. It should establish the framework within which the  
8 pipeline company can prepare its plans and specifications,  
9 draw up the construction and supply contracts, and  
10 order equipment, and should clearly establish perfor-  
11 mance levels expected of each party through every step  
12 of the process from planning and design through  
13 ultimate abandonment.

14 The Environment Protection  
15 Board's terms and conditions were written up in the  
16 form of an environmental code which spells out the  
17 general conditions that will, with proper administration  
18 of regulatory agencies, produce the quality of environ-  
19 mental protection that the Environment Protection  
20 Board thought necessary. Although I wish to amend this  
21 code somewhat in my final argument, it still expresses  
22 the general items that I urge you to include in your  
23 terms and conditions.

24 To relate this to the Con-  
25 struction Contract Convention that I mentioned at the  
26 outset, this environmental code is the equivalent of  
27 the general conditions appendix and the construction  
28 code appendix.

29 This environmental code out-  
lines the general conditions for environment protection.





Templeton, Doyle, Hernandez  
In Chief

1 It does not contain site-specific recommendations.  
2 The site-specific environmental recommendations that  
3 should be included in the permittee's detailed plans  
4 and specifications are contained in this environmental  
5 atlas; and I urge you, Mr. Commissioner, to include  
6 these in your terms and conditions.

7 This atlas has three major  
8 components. It has an environmental base map illus-  
9 trating the existing level of environmental information  
10 for the proposed project areas. It has an overlay  
11 illustrating the proposed project components with  
12 flags to point out environmental concerns. And it has  
13 a series of numbered recommendations that are keyed  
14 to the flags and designed to reduce or eliminate  
15 potential environmental impacts. Three types of  
16 flags are used. General flags point out problems  
17 generally applicable to the entire map sheet. Area  
18 flags include problems applicable to the general area  
19 over which the flag is placed, and site-specific  
20 flags point out specific areas of concern.

21 This graphical approach to  
22 presenting site-specific concerns developed by the  
23 Environment Protection Board is, I believe, a practical  
24 and informative way of summarizing the extensive  
25 amount of project and environmental information for a  
26 wide range of users.

27 Since the Environment Pro-  
28 tection Board published their environmental atlas in  
29 September, 1974, there have been numerous changes in  
30 the project and environmental information. At least



Templeton, Doyle, Hernandez  
In Chief

1 half the route originally proposed by Canadian Arctic  
2 Gas has been changed. Proposed facilities have been  
3 relocated, abandoned, or added; and the project pro-  
4 posed by Foothills Pipe Lines Limited has been referred  
5 to the Inquiry. In addition, much new environmental  
6 information has been presented through testimony and  
7 exhibits and new recommendations to reduce impact have  
8 been presented or existing ones revised as additional  
9 data were obtained and analyzed.

10 Because the 1975 funding of  
11 the Board was limited to attendance at the Inquiry, it  
12 was unable to fund a review and update of its atlas.  
13 So in December, 1975, the Northern Environment Founda-  
14 tion commissioned an update of the Environment Protec-  
15 tion Board's atlas that would include site-specific  
16 recommendations for reducing impact on each of the  
17 proposed pipeline projects. The update was based on the  
18 current environmental and project information presented  
19 to the Mackenzie Valley Pipeline Inquiry.

20 Our map sheet No. 1 covering  
21 the east side of the delta from Tuktoyaktuk to Inuvik  
22 can be used to illustrate the dynamic nature of the  
23 project and the extent to which the environmental  
24 information has changed from September, 1974, to  
25 September, 1976. Seven of the eleven site-  
26 specific flags have been changed on the updated atlas;  
27 six of these flags were shifted with the relocation of  
28 project facilities, and one was modified to indicate  
29 an area impact. In addition, five flags were added  
30 for existing concerns as a result of project relocations





Templeton, Doyle, Hernandez  
In Chief

1 or additions, and two new site-specific concerns were  
2 identified. I think this illustrates the magnitude  
3 of the change that can occur on a project of this  
4 scale and perhaps indicate that all revisions have not  
5 even been made now.

6 I would like now to call on  
7 Mr. Helios Hernandez to review five map sheets to  
8 point out some of these changes in detail and to  
9 illustrate the site-specific recommendations I suggest  
10 the Inquiry adopt as part of their terms and conditions  
11 for a Mackenzie Valley Pipeline.

12 These five map sheets of  
13 Foothills' application, and some of Foothills' applica-  
14 tion and some of CAGSL's, were chosen because of  
15 terrain characteristics, and I urge you to adopt  
16 the site-specific recommendations on all of the map  
17 sheets, even though we'll only be using five for  
18 illustration. I wonder if Mr. Hernandez then could  
19 explain these five sheets?

20 WITNESS HERNANDEZ: Over the  
21 past six years I have been involved in studies which  
22 relate to this Inquiry directly or indirectly. These  
23 are outlined in my resume along with a list of  
24 publications as an appendix to the prepared text of  
25 this panel's presentation.

26 To summarize this briefly,  
27 I received a B. Sc. in biology from the Life Sciences  
28 program at the University of Toronto in 1970 and an  
29 M. Sc. in plant ecology from the University of Alberta  
30 in 1972. I have been employed by Interdisciplinary



Templeton, Doyle, Hernandez  
In Chief

1 Systems Ltd. in Winnipeg since 1973.

2 I have been involved in botanical  
3 investigations of the natural recovery of plant  
4 communities disturbed by oil exploration activities  
5 (such as winter roads, seismic lines, and well sites)  
6 in the Norman Wells area, the Mackenzie Delta area,  
7 Tuktoyaktuk Peninsula, and the Yukon coast. I have  
8 also been involved in revegetation studies in sites  
9 in these areas excluding the Yukon coast but including  
10 Prudhoe Bay, Alaska.

11 Many of these studies were  
12 done as an employee of Interdisciplinary Systems Ltd.  
13 under contract to the Environment Protection Board  
14 for its impact assessment of the proposed gas pipeline.  
15 My involvement included preparation of a vegetation  
16 impact assessment for the Arctic Gas project in 1974  
17 and providing input and background information to  
18 the E.P.B. for preparation of its impact assessment  
19 and its participation at this Inquiry. In this capacity  
20 I have regularly been reviewing the Inquiry proceed-  
21 ings.

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Templeton, Doyle, Hernandez  
In Chief

1 Since January, 1976 I have  
2 been summarizing the information presented at the  
3 Inquiry to prepare map sets containing recommendations  
4 for possible site-specific terms and conditions which  
5 might be imposed as part of the pipeline approval.  
6 It is this material which I will now present.

7 I would like first to discuss  
8 how we went about developing the map sets and then I  
9 would like to review in detail some site-specific  
10 recommendations for the Arctic Gas project and the  
11 Foothills project.

12 As Mr. Templeton pointed out,  
13 the proceedings of the Inquiry have provided a great  
14 deal of new information the environment, the project,  
15 anticipated impacts and recommendations to reduce  
16 impact since the publication of the Environment  
17 Protection Board's atlas in September, 1974.

18 We used the following  
19 guidelines in our review of the EPB atlas in relation  
20 to current project and environmental information:

21 1. The EPB approach of  
22 symbols for projects and environmental components and  
23 flags for potential impacts was to be continued.

24 2. The original EPB atlas  
25 base maps were to be used intact.

26 3. New project and  
27 environmental information and impact flags were to be  
28 portrayed on a clear overlay.

29 4. The EPB impact matrices  
30 were not to be included in the new map series.



Templeton, Doyle, Hernandez  
In Chief

5. Separate map sets were to be prepared for the Canadian Arctic Gas and Foothills projects.

6. The Foothills map set would not include the Yellowknife and Pine Point laterals since this area was not covered on the original base map.

7. The base vegetation information was not to be updated on the maps.

The validity and applicability of site-specific concerns and recommendations presented in the EPB atlas were evaluated in the light of new project and environmental information. Flags were modified according to project changes. New flags and recommendations were developed based on new resource use information and on Inquiry testimony and exhibits. The nature, rationale and source for changes and additions to flags and recommendations are documented in an accompanying report which has been filed as an exhibit.

As Mr. Templeton outlined, each map set consists of three parts: the base map, an overlay and an accompanying facing page. The original EPB base map is unchanged. The overlay contains the proposed location of project route facilities and any relevant environmental information, and flags indicating potential impacts. The facing page contains the legend of symbols used on the base map and overlays, a descriptive text of the environmental setting, a description of hunting and trapping units and a list



Templeton, Doyle, Hernandez  
In Chief

1 of recommendations keyed to the flags on the map sheet.

2 There are three types of flags  
3 in the overlays; general flags, area flags and site-  
4 specific flags. The general flags are grouped in a  
5 box and point out the concerns generally applicable  
6 to the entire map sheet. The area flags indicate  
7 concerns applicable to the general area over which they  
8 are placed and site-specific flags have a flag pole  
9 pointing to the specific area of concern. I would now  
10 like to review in detail with you five map sheets  
11 that are representative of the site-specific concerns  
12 illustrated in the map sets. The exhibit itself, of  
13 course, contains the site-specific terms and conditions  
14 for all the map sheets of each proposed project.

15 First, map sheet ES-1 for the  
16 Arctic Gas project. ES-1 or the first map covers the  
17 area of the eastern Mackenzie Delta and adjacent  
18 uplands east of the delta from Richards Island to  
19 Sandy Lake, just north of Travaillant Lake.

20 THE COMMISSIONER: Excuse me.  
21 You and I are the only people with this map?

22 A These were all sent to  
23 the participants with our evidence back in the middle  
24 of August or the end of August and we had only a  
25 limited supply. I brought up two of them. I guess  
26 you got one and I got one.

27 WITNESS TEMPLETON: Do you  
28 need those?

29 WITNESS HERNANDEZ: Not really.

30 WITNESS TEMPLETON:  
Perhaps we could take Mr.





Templeton, Doyle, Hernandez  
In Chief

Hernandez's copy and set it on the table so if anybody wanted to--

THE COMMISSIONER: Sure.

I was going to say, if any of you want to look over my shoulder, you're welcome.

WITNESS HERNANDEZ:

The first map for the Arctic Gas project and the Arctic Gas and that consists, as I said, of a base map and clear overlay. The base map covers the area of the eastern Mackenzie Delta and the adjacent uplands east of the delta from Richards Island to Sandy Lake, just north of Travaillant Lake. Numerous projects have been proposed in this region, as indicated on the map overlay. These include route and facility locations for the first 133 miles of the Mackenzie Valley portion of the pipeline proposed by Canadian Arctic Gas Pipeline Limited, as well as the last 23 miles, about MP 350 or 373 of the proposed cross-delta route.

Also proposed for the area shown on this map sheet are three gas processing plants: Taglu, Niglintgak, and Parsons Lake. I wish to stress, however, that we did not attempt to assess the impacts of these proposed gas processing plants because of the preliminary nature of these proposals and having insufficient details on which to make site-specific assessments. While some of the site-specific concerns will no doubt be similar to those for the pipeline, many others will be unique and require more information than we had available at this time.

People based in the settlements



Templeton, Doyle, Hernandez  
In Chief

of Tuktoyaktuk, Aklavik, Inuvik, Ft. McPherson, and Arctic Red River, at varying intensities; hunt, fish and trap the entire area covered by this map sheet, as indicated by the hunting and trapping and the accompanying description on the opposite page. The entire map sheet falls within either the Tuktoyaktuk and Delta Group Registered Trapping Area.

Now, general flags which apply to this map: Seven flags point out concerns which are generally applicable to this area and they're grouped in a box in the upper right-hand corner of the overlay.

The first general flag indicates a concern for the potentially serious effect of disturbance caused by overland traffic on thawed permafrost terrain. This flag is keyed to recommendation 26 on the facing page which states, "Except for emergencies, overland travel when the ground is thawed; spring, summer and fall, is to be restricted to permanent roads and adequate gravel pads because permafrost terrain is so easily disturbed and because of the serious consequences that can result from disturbance."

The second general flag illustrates the concern for effects of burning slash directly on the ground, even in winter. Recommendation 27 states, "Because the insulating surface peat layer is also burned off, burning of slash in the ground is to be allowed only when the area is to be dug up subsequently, e.g. borrow pit or ditchline, where





Templeton, Doyle, Hernandez  
In Chief

bedrock occurs at the surface, or where the underlying permafrost is not ice-rich; otherwise burning sleds are to be used. In addition, fire contingency plan should be developed for extinguishing fires which are started by project activities and for protecting project facilities threatened by fires which have originated elsewhere.

The third general flag of the group points out a concern about the potentially serious effects of using cut-grading construction techniques in ice-rich terrain. Recommendation 28, to which this flag is keyed states, "Exposure of the ice-rich soil by cut-grading or damaged peat layer can lead to thermokarst subsidence, slumping and unsloping terrain to the formation of deep gullies, Fill-grading rather than cut-grading should be used".



Templeton, Doyle, Hernandez  
In Chief

The next two general flags reflect a concern about the fire susceptibility of the various tundra and forested plant communities in this region. Both flags refer to recommendation 39 which states:

"All plant communities, except the wettest ones or those surrounded by water, are susceptible to fire, especially in the summertime. Therefore fire contingency plans should be developed for extinguishing fires started by project activities and for protecting project facilities threatened by fires originating elsewhere."

The sixth general flag points out the possible effects of construction activities on known and potential archaeological sites. This flag is keyed to recommendation 45 which states:

"The archaeological potential of proposed facility locations and route alignments should be investigated before construction begins. Should archaeological sites be encountered during construction, a professional opinion should be obtained on how to protect the site before construction is resumed."

The final general flag reflects concerns often expressed at this Inquiry regarding the possible effects that construction activities could have on hunting, trapping and other uses of the environment. Recommendation 60 states:

"A land use plan should be drawn up which



1 accommodates and protects the native use  
2 of the environment."

3 Next, area flags. Eight area  
4 flags indicate concerns over portions of the map  
5 sheet for the proposed Arctic Gas project.

6 Four of these flags are  
7 scattered across the Mackenzie Delta along the bottom  
8 of the map sheet. They illustrate the widely ex-  
9 pressed concern about the effects of aircraft over-  
10 flights on migrating, nesting, moulting and/or  
11 staging ducks, geese and swans during spring, summer  
12 and fall. These flags are coded to recommendation 1  
13 which states that:

14 "Aircraft flight corridors should be routed  
15 to minimize traffic over the Mackenzie Delta  
16 and the tundra areas north of a line from  
17 Reindeer Station to Sitidgi Lake from 15th  
18 May to 15th October. Essential traffic  
19 over this area should fly at altitudes of  
20 at least 2,000 feet above ground level."

21 Another area flag has been  
22 placed within the Kendall Island Bird Sanctuary within  
23 which are proposed several construction activities.  
24 This flag is keyed to recommendation 53, which states  
25 that:

26 "All activities inside the Kendall Island  
27 Bird Sanctuary require Canadian Wildlife  
28 Service approval and control so that the  
29 qualities for which the sanctuary was set  
30 aside are not degraded."





Templeton, Doyle, Hernandez  
In Chief

This same area of the outer Mackenzie Delta is known to be an important nesting, moulting and staging area for numerous species of birds, but especially for snow geese, swans, and ducks during spring, summer and fall. Numerous construction and related activities (such as barging, major river crossings, stockpiling), are scheduled for the outer Mackenzie Delta when the birds will be there. All of these activities combined could have a major impact as indicated by the flag keyed to recommendation 54. This recommendation states that:

"All ground activities in the outer Mackenzie Delta will have to be carefully controlled and inspected so as not to interfere with nesting, moulting, staging and migrating waterbirds."

The seventh area flag is located in the Parsons Lake area. The reindeer herd uses this area and construction activities are planned for the area. The potentially moderate impact could be reduced by the following recommendation 6, which states:

"Contact with reindeer herdsman should be maintained to prevent conflicts between the herd and construction activities."

And the final area flag occurs in the Dolomite Lake-Campbell Lake region south of Inuvik. The area supports a population of raptors which are sensitive to disturbance by aircraft overflights. The impact could be reduced by following recommendation 7, which states:



Templeton, Doyle, Hernandez  
In Chief

"Aircraft traffic should be routed to avoid active eyries of raptorial birds from 1st March to 1st September. Traffic over any other areas of raptor nesting habitat during this period should fly at altitudes of at least 2,000 feet above ground level."

Now, site-specific flags for this map. Map ES-1 contains 17 site-specific flags denoting potentially major or moderate impact associated with various project activities at several specific sites.

Of these 17 site-specific flags, 7 indicate a concern with the known harmful effects of petroleum spills on many environmental components. The criteria used to determine whether a flag is warranted at a proposed fuel stockpile site involved in evaluation of

- (a) the sensitivity of the environmental components occurring around the stockpile site, and
- (b) the potential for the spill spreading elsewhere, if it occurs.

Based on these criteria, three stockpile sites have been flagged, the site at about Milepost 355 on the cross-delta route, the site near Tununuk Point, and the site near Inuvik. At all three sites one of the concerns relates to the possible effects on the abundant water bird populations which use the Mackenzie Delta for all phases of their life history, except overwintering. At the cross-delta and Tununuk stockpiles, concern is also indicated for beluga whales which use





Templeton, Doyle, Hernandez  
In Chief

1     Kugmallit Bay and Mackenzie Bay and for the tall  
2     shrub plant communities along the water-courses.     In  
3     all cases the recommendation for reducing impact is the  
4     same, No. 2:

5         "All fuel storage areas should be set back  
6         at least 500 feet from water and dyked with  
7         impervious materials so as to contain 125%  
8         of the total capacity of all the tanks  
9         combined. Contingency plans for fuel spills  
10        should be prepared and necessary equipment  
11        made readily available."

12                The upland tundra areas of  
13     Richards Island and the Caribou Hills are known to  
14     be important grizzly bear habitat, and such bears are  
15     known to be attracted to kitchen garbage. As a result,  
16     three flags reflect the potential major conflict  
17     between bears and areas where people will be stationed  
18     for at least several years. The flags are located at  
19     compressor stations CD-08, at Tununuk Point, and at  
20     compressor station MD-01.     The flags are all keyed to  
21     recommendation 3, which states:

22         "Areas where food or kitchen refuse will be  
23         handled should be protected by a bear-proof  
24         electric fence. Pipeline personnel should  
25         not be allowed to keep firearms."

26     This latter recommendation is made so that bears and  
27     other wildlife are not unnecessarily shot.

28                YaYa Lake (near Milepost  
29     20) on Richards Island is a known local recreational  
30     and sports fishing area. The esker near YaYa Lake is



Templeton, Doyle, Hernandez  
In Chief

also proposed as a major gravel source for many of the construction activities planned in the area. Care will have to be taken that the lake is not affected by borrow activities. In addition, recommendation 48 states that:

"Activities near local recreational areas should not alter the appearance of access to, enjoyment of or use of such local recreational areas."

Now the revised north-eastern boundary of the proposed Caribou Hills IBP site now includes about two miles of the proposed pipeline route (near Milepost 37), partly so that this area of the IBP site could be used to monitor the long-term effects of construction activities. The flag coded to recommendation 12 indicates there is still concern, however. Recommendation 12 states that:

"Pipeline construction may not be incompatible with this portion of the proposed IBP site, since this area may be used to monitor long-term effects of construction activity. However, care will have to be taken so that activities do not take place in areas of the IBP site designated either as reserves or as undisturbed controls for long-term comparison with disturbed sites. All activities should be approved beforehand by the agency in charge of the reserve, and in addition, all activities which are allowed should be well-documented so that data are available for



Templeton, Doyle, Hernandez  
In Chief

evaluation of the effects of construction  
later on."

The possible effects on  
fish stocks of increased human access and uncontrolled  
fishing by project personnel have been pointed out  
throughout the INquiry. Some site-specific areas  
which have been designated as sensitive include com-  
pressor station MD-01, Peter Lake south-west of  
Milepost 50, and a tributary to Campbell Lake, south of  
Inuvik along the Dempster Highway. Recommendation 4  
states that:

"Fishing activities should be monitored to  
permit imposing restrictions in case the  
resource shows signs of depletion."

The proposed Dolomite Lake-  
Campbell Lake IBP site is intended as an inviolate  
ecological reserve. Thus, flag recommendation 5  
states that:

"Where an IBP site or part of an IBP site is  
intended as an ecological reserve, construction  
activities and all facilities must be located  
outside its boundary."

The final site-specific flag  
on map ES-1 is also related to the same proposed  
borrow pit near Campbell Lake. This area is a known  
major raptor nesting area (as discussed previously  
in area flat 7). Recommendation 8 states that:

"All ground activities within a 2-mile buffer  
zone of active peregrine falcon, gyrfalcon,  
, golden eagle, or osprey eyries should be pro-





Templeton, Doyle, Hernandez  
In Chief

hibited from March 1st to September 1st.

Any molestation of raptors by humans should  
also be prohibited."

Next, map 1 for the  
Foothills project.

WITNESS TEMPLETON: I guess  
that's on another atlas.

WITNESS HERNANDEZ: That's  
on another atlas, yes.



Templeton, Doyle,  
Hernandez  
In Chief

One for the proposed project proposed by Foothills Pipelines Limited covers the same area as Arctic Gases map. The concerns identified and recommendations to reduce impact applicable to this map sheet for the Foothills Project are similar in general but different specifics than those just described. Flags indicating concerns, generally applicable to the entire map sheet and area /applicable concerns to the large portions of the map sheet are the same for both projects. Thus the recommendations for reducing impact are the same as those I presented a few minutes ago.

The site specific flags however, differ, The types of concerns such as for fuel stockpiles, grizzly bear and garbage attraction are also applicable to the Foothills project but at different sites because of the difference in facility locations. Thus, fuel stockpile and handling concerns are flagged for Foothills at the proposed East Channel Crossing but not in the outer Delta since Foothills doesn't have a Cross Delta route. As proposed for the Arctic Gas project, the recommendation to reduce impact at fuel stockpile sites would be the same number 2, which states that all fuel storage areas should be set back at least 500 feet from water and dyked with impervious materials so as to contain 125 percent of the total capacity of all the tanks combined. Contingency plans for fuel spills should be prepared and necessary equipment made readily available.

Attraction of grizzly





Templeton, Doyle, Hernandez  
In Chief

bears to areas where food and kitchen refuse are handled is identified as a concern at the camps associated with the crossing of the East Channel and at compressor I-01. As for Arctic Gas, recommendation 3 calls for fencing such areas with an electric bear-proof fence and prohibiting project personnel from keeping firearms so that bears and other wildlife are not unnecessarily shot.

Foothills also proposes to take gravel from the YaYa Lake esker, thus possibly affecting the local recreational use of the lake. And Flag recommendation 48 is the same as before. Activities near local recreational areas should not alter the appearance of, access to, enjoyment of, or use of such local recreational areas.

A concern applicable to Foothills but not to Arctic Gas is associated with the proposed East Channel crossing site near Holmes Creek, the location of a domestic fishing site. Recommendation 49 states that, construction activities near commercial fisheries should be located, carried out, and timed, so that fishing activities are not altered and so that the fishery itself is not impaired.

The routing proposed by Foothills does not cross the proposed Caribou Hills IBP site but it does cross the proposed IBP site and raptor nesting area around Campbell and Delomite Lakes. Recommendations 5 and 7 respectively, apply as presented previously for the Arctic Gas Project.

And there's one final dif-



Templeton, Doyle, Hernandez  
In Chief

ference between the Foothills proposal and the Arctic Gas proposal which has recently arisen. The question of feasibility of winter construction in the northern portion of the route. I understand that this issue will be discussed later this week. This question has various implications for the site specific concerns which are identified and recommendations for reducing impact. However, lack of a sufficiently detailed project description made identification of specific conflicts difficult at the time the study was completed.

Thus, we were unable to make a more specific recommendation than area flag 54 regarding the cumulative effects of summer activities in the outer Delta. It states, that, "all ground activities in the outer Mackenzie Delta will have to be carefully controlled and inspected so as not to interfere with nesting, moulting, staging and migrating waterbirds."

A fundamental assumption of our assessment was that the project could be built as first stated by the engineers, namely in winter. If this assumption is incorrect, then the assessment is also incorrect and these recommendations to reduce impact may not be sufficient. Others may be needed.

The next map I'll discuss is map 4 for the Foothills project. Map 4 covers the Mackenzie River/<sup>Valley</sup>portion of the route from Oscar Creek about mile post 350 to the Saline River about mile post 480 and includes community laterals to Norman



Templeton, Doyle, Hernandez  
In Chief

Wells and Fort Norman. The entire region is used to varying intensities for fishing, hunting and trapping by residents based at Fort God Hope, Fort Norman, Fort Franklin and Wrigley as indicated on the units and then on the overlay.

General flags. Eight general flags grouped in the lower left, generally apply to the entire map sheet. Six of these also appear as general flags to map ES-1 for both the Foothills and the Arctic Gas projects, and they reflected concerns about summer activities off adequate gravel pads about disposal of slash by burning it directly on the ground about the susceptibility to fire of the various forested plant communities, about archaeological sensitivity of the region and about conflicts with traditional hunting and trapping land-use activities.

The recommendations were outlined earlier and they apply here also.

One other general flag represents two concerns related to the disturbance of raptorial birds. They are keyed to recommendations 7 and 8. These concerns appear on map 1 as an area and a site specific concern respectively. On this map, however, they appear as a general concern because these rare and endangered species inhabit mountainous portions of the area.

The general flag coded to recommendation 31 is unique to this map sheet. It points out a concern for the effects of operation of the cold pipe in unfrozen terrain. In unfrozen areas





Templeton, Doyle, Hernandez  
In Chief

of mixed lacustrine and deltaic deposits from Great Bear River to Big Smith Creek, differential heave of the pipeline is a possibility. Recommendation 31 indicates that installation of expansion loops could prevent overstressing the pipe and the environmental damage that could result from pipe rupture.

Area Flags. Five area flags are applicable to general areas of the map sheet. Three of these keyed to recommendation 10 are placed over or near islands in the Mackenzie River used in spring by migrating ducks, geese, and swans. Overflights of islands in the Mackenzie River are a major concern throughout May until mid-June because the birds are sensitive to disturbance, including overflights by aircraft. The islands north of Camsell Bend are critical to these migrating birds for resting, feeding and mating in open water areas around the islands.

Recommendation 10 states; "Aircraft traffic, except into established airports, should be prohibited within 2 miles of the Mackenzie River from Camsell Bend to Inuvik from 1 May to 15 June. Flights across this restricted zone should be direct, at altitudes greater than 2000 feet above ground level and should avoid river islands."

The two other area flags are keyed to recommendation 9. They indicate wetland areas west of Fort Norman and in the Brackett Lake area used by nesting waterfowl throughout spring, summer and fall. Here, as with river islands, aircraft overflights should be controlled. Recommendation



Templeton, Doyle, Hernandez  
In Chief

9 states: "Aircraft flight corridors should be  
routed to avoid or minimize traffic over this wetland  
area from 15 May to 15 October. Essential traffic  
during this period should maintain a minimum above-  
ground altitude of 2000 feet.

Site Specific Flags. Six  
site specific flags are indicated on this map sheet.  
Two represent concerns at the fuel stockpile sites  
near Norman Wells and south of Fort Norman. They  
indicate the concerns for the effects of fuel spills  
on ducks, geese, and swans. In spring, birds are  
attracted to open water leads which appear near  
shorelines such as around islands. A fuel spill is  
known to resemble such open water leads and attracts  
birds. At other times of the year, a spill would foul  
the habitat on which birds depend for migration and  
nesting. As a result, all fuel stockpile sites should  
be adequately and effectively dyked and effective  
fuel spill contingency plans should be prepared and  
implemented as detailed previously in recommendation  
2.

Canyon Creek has been identi-  
fied as the major concern for the effects of siltation  
resulting from borrow activities. Recommendation 13  
states that local drainage should be carefully con-  
trolled to prevent washoff from construction areas  
into this stream.

Nota Lake, mile post 405  
has been identified as a lake where uncontrolled  
fishing could affect fish stocks. As described



Templeton, Doyle, Hernandez  
In Chief

through ES-1 previously, recommendation 4 calls for monitoring fishing activities to see if restrictions should be imposed.

The boundaries of the proposed Brackett Lake IBP site have been drawn to include about 5 miles of the proposed pipeline route and highway. This part of the site is intended as an area for monitoring the effects on construction and operation of the highway and pipeline. The area has been flagged with recommendation 12, as was the Caribou Hills IBP site on map ES-1 for Arctic Gas. To indicate that care will still be needed to ensure that construction activities do not take place in areas designated as undisturbed controls or as inviolate areas. In addition, all activities should be approved beforehand and should be thoroughly documented so that the data are available for later evaluation of the effects of construction.

Oscar Creek has been identified as one of the areas along much of the Mackenzie River and its tributaries used by moose as access to winter range or as an actual winter range. Recommendation 11 states that, "construction and human activities near moose overwintering range should be carefully controlled. Pipeline personnel should not be allowed to hunt. To prevent illegal hunting, firearms should be prohibited.





Templeton, Doyle, Hernandez  
In Chief

The next two maps will be back on the Arctic Gas project and they'll be the last two I'll present. Map No. 4 for the Arctic Gas project as I've just described for the Foothills project. The general and area concerns are the same as those discussed for map 4 for the Foothills project and the nine site-specific flags in the Arctic Gas map sheet reflect the same concerns as previously presented for Foothills but in some cases at different sites.

Compressor stations M-08, M-09 and M-10 are flagged to indicate concerns for fuel handling and stock piling and to indicate possible conflicts of construction of moose on their winter range near these compressor station sites.

The other three site-specific concerns are the same as for Foothills; siltation at Canyon Creek, effects of uncontrolled fishing at Nota Lake and crossing of the proposed Brackett Lake IBP site.

The last map I'll present is map sheet ES-11 for the proposed Canadian Arctic Gas Pipeline Limited project. This is the one that covers the interior alternate route. This map covers the interior alternate along the Porcupine River from the Alaskan/Yukon boundary, MP 297, to the Yukon/N.W.T. boundary, MP 435. The people of Old Crow hunt, fish and trap the area covered by this map to varying intensities. People based in Aklavik, Inuvik and Ft. McPherson also use the eastern portion of the map area. The entire area in the Yukon, however, forms part of the



Templeton, Doyle, Hernandez  
In Chief

Old Crow Group Registered Trapping Area.

General flags: Eight general flags apply to this map sheet. Of these, one is specific to the map sheet. The other seven have been previously discussed for maps ES-1 and ES-4. These seven flags point out concerns about summer overland travel off adequate gravel pads, recommendation 26; disposal of slash by burning it directly on the ground, recommendation 27; disturbance of raptorial birds by aircraft overflights, recommendation 7; and ground activities, recommendation 8; fire susceptibility of vegetation, recommendation 39; archaeological sensitivity of the area, recommendation 45; and conflicts of hunting and trapping land use activities, recommendation 60.

The general flag specific to this map sheet indicates a concern for terrain disturbance and is keyed to recommendation 38 which states, "Geotechnical data indicate that the lacustrine deposits are ice-rich. Areas underlain by them thus have high potential for active layer detachment and thaw flow slides. The alluvial deposits can contain massive ice up to eighteen feet deep. Cut banks in these deposits could be subject to extensive flow slides. When banks must be cut, they should be protected by armoring or insulation".

Area flags. Five area flags apply to this map sheet. Two flags indicate that the proposed route crosses the proposed Old Crow IBP site and a subsite within it. This site appears to be



Templeton, Doyle, Hernandez  
In Chief

1 incompatible with pipeline related disturbances. It's  
2 the intent of the Committee that recommends the IBP  
3 site to be followed. Thus recommendation 5 indicates  
4 that the pipeline should not be located within it if  
5 it is to remain undisturbed.

6 Migrating caribou are sus-  
7 ceptible to disturbance by low flying aircraft. A  
8 flag key to recommendation 24 near MP 320 states,  
9 "To prevent injury and disturbance or caribou, aircraft  
10 should fly at altitudes greater than five hundred feet  
11 above ground level".

12 The southern Richardson  
13 Mountains are also important Dall sheep range. The  
14 area flag keyed to recommendation 23 indicates that  
15 these animals are sensitive to noisy disturbances such  
16 as aircraft overflights. Recommendation 23 states,  
17 "Aircraft traffic over Dall sheep range should fly  
18 at altitudes of at least two thousand feet above ground  
19 level. Noisy facilities should not be permitted to  
20 operate within two miles of wintering or lambing  
21 areas of Dall sheep".

22 The last area flag is the  
23 Old Crow Flats are a major waterfowl area.  
24 Recommendation 25 states, "Aircraft flight corridors  
25 should be established to eliminate the traffic over  
26 the wetland areas of the Old Crow Flats from 15 May  
27 to 1 October. Emergency traffic should fly at altitudes  
28 of at least two thousand feet above ground level over  
29 the Old Crow Flats during this period. Ground  
30 activities should be prohibited on the Old Crow Flats





Templeton, Doyle, Hernandez  
In Chief

from 1 June to 1 October".

Site-specific flags: The seventeen site-specific flags on this map sheet fall into five types; interference with caribou migrations, fuel stockpile sites, attraction of grizzly bears to garbage, siltation of streams and domestic fishing.

Six flags, numbered 21, are scattered along the proposed routings since the entire area of this map sheet is generally crossed by caribou during spring and fall migrations. Conflicts with migrating caribou can be prevented by following recommendation 21, which states, "Caribou migrations should be monitored during the years of construction to give advance warning of the approach of animals so that the construction spread can be shut down, and the ditch filled. Strung pipe should be turned parallel to the direction of travel of the caribou".

The three proposed fuel stockpile sites at MP 330, 390 and 420 have been flagged as recommendation 2, since mature riverbank spruce communities along water courses are of limited extent on this map sheet. All fuel stockpile sites should be set back at least five hundred feet from water and dyked with impervious materials so as to contain 125 percent of the capacity of all tanks combined. Contingency plans should be prepared and necessary equipment made available.

Grizzly bears may be attracted to garbage at compressor stations IA-08, IA-09 and IA-10. Recommendation 3 calls for these areas to be protected



Templeton, Doyle, Hernandez  
In Chief

1 by bear-proof electric fences. In addition, pipeline  
2 personnel should not be allowed to keep firearms to  
3 prvent needless killing of wildlife.

4 Two stream crossings, MP 305  
5 and 392, have been identified as moderately sensitive  
6 to siltation. Therefore recommendation 13 states that  
7 Wash-off from disturbed construction areas should be  
8 prevented from entering these streams.

9 Compressor station IA-09 and  
10 its associate borrow pits and stockpile sites is located  
11 near a domestic fishing site. Flag recommendation 42  
12 calls for construction activities near such domestic  
13 sites to be "located, carried out, and timed so that  
14 fishing activities are not affected, and so that the  
15 fishery itself is not impaired".

16 This concludes my presentation.  
17 Thank you.

18 WITNESS TEMPLETON: Mr.  
19 Hernandez has explained the essential points of five  
20 map sheets to illustrate how the atlas can be used to  
21 present site-specific impacts and recommendations.  
22 Two completed atlases were prepared so that when and if  
23 a permit is issued, there will be an atlas for that  
24 project.

25 You will notice that the  
26 atlas makes recommendations and uses the word "should".  
27 On the other hand, the Code is much more specific and  
28 often uses the command "shall". The reason for this  
29 is because I believe, as did the Environment Protection  
30 Board, that the environmental specifications need to be



Templeton, Doyle, Hernandez  
In Chief

drawn up with as much detail as the engineering specifications. Canadian Arctic Gas and I presume Foothills too agree that the specifications cannot be drawn up now until the project has been designed. These site-specific recommendations would be needed when the design is being made and then the "shoulds" could be changed to "shalls".

The atlas is a useful tool for the regulatory agency to check the detailed designs against because it gives, by means of flags and symbols, the reasons for its recommendations.

This Inquiry has, in my opinion, been an outstanding success in public participation and in the acceptance of its methodology by the public. I'm sure that the general terms and conditions will likewise be acceptable but I worry about some of the smaller things. For example, how will the small dot on the map which is insignificant to the project be recognized as a spring fishing lake and a food supply for a community? The attention given to these site-specific recommendations can make the project acceptable or not acceptable in the perception of many people.

Confucious said, "Men do not stumble over mountains, but over molehills". In the hopes that we will not stumble over site-specific impacts and recommendations, I present these two atlases for the project.

THE COMMISSIONER: Thank you,  
Mr. Templeton.





Templeton, Doyle, Hernandez  
In Chief

1 MR. GOUDGE: I wonder, sir,  
2 if we could break for coffee and consider the last  
3 remarks.

4 THE COMMISSIONER: Yes, reflect  
5 on that sage advice from Winnipeg.

6 (PROCEEDINGS ADJOURNED FOR A FEW MINUTES)  
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Templeton, Doyle, Hernandez  
In Chief

(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

THE COMMISSIONER: O.K.

MR. GOUDGE: Before we resume, sir, I suggest that he's indicated to me that he would like to conclude his presentation with a land use plan evidence, which is Part III of his prepared evidence, and I suggest that it might fit in well with our schedule if we could attempt to complete Part IV now and then break for lunch, if that suits you. Part IV is Mr. Doyle's part.

THE COMMISSIONER: O.K.

MR. TEMPLETON: I'm not sure that Mr. Doyle can finish in that time, but --

MR. GOUDGE: Perhaps we could begin and see how we get along.

WITNESS TEMPLETON: Mr Commissioner, I would now like to introduce Mr. Derek Doyle, who will present the findings of a study team that he directed. The study was commissioned by Mr. Pick of the Environment Protection Service of the Department of Environment in Edmonton during the period January through March, 1976. I believe the study gives a practical perspective on what the key activities of a single agency are, the manpower that will be required, and the timing for acquiring these resources, and a possible management strategy for bringing the agency into existence.

Before Mr. Doyle starts, I would like to record -- to express my thanks to the Environmental Protection Service for allowing Mr. Doyle



Templeton, Doyle, Hernandez  
In Chief

1 to present these findings here today.

2 I wonder if Mr. Doyle would  
3 give a brief summary of his qualifications?

4 WITNESS DOYLE: Mr. Commis-  
5 sioner, I hold a Bachelor of Engineering degree in  
6 mechanical engineering from the University College,  
7 Dublin, Ireland. I am a member of the Professional  
8 Engineers Association of Manitoba. I hold a certi-  
9 ficate in business management from the University of  
10 Manitoba where I am continuing graduate studies in  
11 business management.

12 From 1963 to '65 I held  
13 various industrial engineering positions in Ireland and  
14 Norway, and from 1965 to 1970 I held plant engineering  
15 positions with Building Products of Canada Ltd.

16 From 1970 to 1975 I held  
17 various positions with Templeton Engineering Company  
18 and Interdisciplinary Systems Ltd. In particular my  
19 duties involved corporate administration, project  
20 planning, impact assessment and program direction.

21 I am currently general manager  
22 of Interdisciplinary Systems Ltd.

23 I'd like now, Mr. Commissioner,  
24 to present the study I directed for the Environmental  
25 Protection Service of the Department of the Environment  
26 in Edmonton.

27 Just to give some background  
28 on this presentation, the purpose of this presentation  
29 is to provide an understanding of what is involved in  
30 the establishment of a single government regulatory





Templeton, Doyle, Hernandez  
In Chief

agency to control from an environmental perspective the Mackenzie Valley gas pipeline project north of latitude 60 degrees north.

When I say "from an environmental perspective" I want to make it clear that this does not take into account the traditional control and inspection function carried out by the National Energy Board on such projects. The normal N.E.B. requirements would have to be dove-tailed with the recommendations which will be presented.

Based on the assumption then that a single agency would control the project, we were retained by Mr. Pick of the Environmental Protection Service, D.O.E., Edmonton, to assess the applicants schedules, to identify the key activities for the agency, its probable resource requirements and the timing for acquiring the resources.

It was recognized that there were two aspects to determining the organization and staffing that would be needed. First, the level of control would have to be defined for the project, and second, the project schedule would have to be clearly understood. By bringing these two matters together, it would be possible to define key activities for the agency, the manpower required, a schedule, and an organizational mechanism to establish the agency.

To provide an overview of this presentation I will commence by summarizing our general findings.

Controlling the Mackenzie



Templeton, Doyle, Hernandez  
In Chief

1 Valley gas pipeline project will be an enormous task  
2 -- one that is difficult to conceive, let alone put  
3 into practice.

4 If an agency is to meet  
5 the challenge, it must accomplish three key  
6 activities. First, it must prepare regulatory  
7 documentation well in advance of the pipeline  
8 company's submissions so that the company can comply  
9 with the agency's regulations in their plans, designs,  
10 and schedules.

11 Second, it must conduct preliminary  
12 and final design reviews to ensure that the designs  
13 and plans of the company are environmentally sound.

14 Third, it must put a team of trained  
15 inspectors in the field to inspect pre-construction  
16 and construction activities.

17 The agency will need to  
18 get started early if it is to accomplish these  
19 tasks. Two years before any construction starts, a  
20 core group of eight persons should be formed to es-  
21 tablish broad policies, objectives, and procedures.  
22 Six months later, nine senior staff should be added  
23 to the agency to spearhead the preparation of codes,  
24 stipulations, guidelines, detailed procedures, manuals,  
25 and other regulatory documentation -- the tools of  
26 the job. Nine months before construction starts,  
27 design review staff peaking at 60 persons in various  
28 disciplines will be needed to examine submissions by  
29 the pipeline company. Finally, up to 40 inspectors with  
30 support from specialists when necessary will be



Templeton, Doyle, Hernandez  
In Chief

1 required to inspect the staggering number of pre-  
2 construction and construction activities, many of  
3 which will be occurring simultaneously at several  
4 locations along the route.

5 The advantage of this multi-  
6 phase approach is that it will see the gradual  
7 accumulation of staff starting with a handful of  
8 personnel. This would allow the agency to take care of  
9 the important documentation and review activities  
10 before project approval in an unobtrusive manner, yet  
11 still enable it to be in a position to achieve environ-  
12 mental protection if the project proceeds.

13 The first aspect I'd like  
14 to look at now is project schedule.

15 The schedule of construction  
16 activities for the Mackenzie Valley gas pipeline  
17 north of 60 degrees is an awesome one. The actual  
18 pipe-laying on any one construction segment will be  
19 preceded by 18 months of site preparation and con-  
20 struction activity required to build wharves, camps,  
21 roads, and airstrips. When pipeline installation  
22 starts, 800-man crews could be at work at as many as  
23 four different locations along the valley, simultaneously.  
24 In the meantime, clearing and other preparatory  
25 activities will be active at four other spreads.  
26 Station construction, once it begins, will proceed  
27 year-around. Major river crossings will be installed  
28 in summer, while a diversity of other activities is  
29 going on, such as depositioning of fuel and pipeline  
30 supplies. In short, once construction starts, it will





Templeton, Doyle, Hernandez  
In Chief

1 continue throughout the project area year-around  
2 for five years. The schedule of pre-construction  
3 activities is proportionately immense. A tremendous  
4 range of decisions and commitments must be made before  
5 any construction begins. The types of equipment,  
6 seasonal limits, and environmental constraints must  
7 be decided upon. Sites for borrow pits, stations,  
8 and wharves must be investigated and finalized.  
9 Access to do these investigations must be gained.  
10 Designs, specifications and contract documents must  
11 be prepared. And most of these pre-construction acti-  
12 vities carry serious environmental implications for  
13 the project.

14 An understanding of both  
15 the pre-construction and construction activities is  
16 essential for those who would control the environmental  
17 impact of this massive endeavor.

18 The information which we  
19 had available comes from the applications of CAGPL  
20 and Foothills to DIAND, N.E.B., and the proceedings  
21 of this Inquiry.

22 Since some information is  
23 available on project scheduling -- excuse me, since  
24 more information is available on project scheduling  
25 from CAGPL than from Foothills, we will lead off our  
26 discussion of various aspects of the project by  
27 referring first to CAGPL and then to showing the  
28 slide of the Foothills project. We have also dealt  
29 with construction activities first, because pre-  
30 construction activities only assume their full



Templeton, Doyle, Hernandez ,  
In Chief

significance when viewed in the light of what could happen if construction activities were allowed to begin without any preliminaries.

Construction activities.

Throughout this presentation we will be referring to certain figures. These figures are found in the report:

"Assessment of Environmental Protection  
Activities of the Mackenzie Valley Gas  
Pipeline Project, "

This is a policy and planning report of E.P.S. No. 2 NW-76-1 and will be entered as an exhibit, and from which this script was prepared.

Now you're all familiar with the project. I'd just like to recap for a few minutes. Let us look at figure 2 as shown on the screen.

"CAGPL Construction Schedule Spread A  
(between Milepost 0 and Milepost 133)".

The project components have been broken down into surveys, support facilities, construction, pipeline construction, compressor and meter stations, and operations and maintenance facilities.



Templeton, Doyle, Hernandez  
In Chief

Figure 2 gives some perspective of the frequency and duration of pipe installation activity in relation to other activities. Pipe installation occurs only at the beginning of year three and year four, note the arrows, in the midst of considerable construction activity on this spread from early in year one, right through to the middle of year four.

The next two figures present the overall--

THE COMMISSIONER: Sorry. No point in rushing through these. This is from the border to--

A This is from Richards Island, MP 0 to MP 133. It's a typical spread schedule. Starting at the top, the first activities, we have surveys. Now, we've used the nomenclature year one to indicate the commencement of the field construction activity. So, you can see in the top of the figure that there are location surveys going on and they're followed by construction surveys.

Q No, I'm just looking at the distribution of activities throughout the year. That pipeline, as you know, -- It's been some time, perhaps a year since we looked at one of these things here and I'm just trying to get back into it. That's all.

A These figures are shown in this report, which is on your desk, I believe, and that figure, figure number two--





Templeton, Doyle, Hernandez  
In Chief

1 Q Well, is the report you  
2 did for DOE?

3 A Right.

4 Q Right.

5 A That too appears at page  
6 eight.

7 Q Now, just so I'm with  
8 you--

9 A I might indicate that the  
10 source of this material came from the Canadian Arctic  
11 Gas Pipeline Company Limited; their construction plan  
12 under Section 13A of their exhibit.

13 Q Yes, I remember we saw  
14 these bar graphs when they produced them themselves  
15 which, as I say, is more than a year ago now. Okay,  
16 well carry on. I'm with you.

17 A We move on now to figure  
18 3A which is on page eleven of the report referring to  
19 the information shown on this chart. It demonstrates  
20 when each of these project components were commenced  
21 for the total project and the length of the bar line  
22 indicates the total duration of that activity. Again,  
23 the top of the chart indicates year one through year  
24 four. It can be seen that line location surveys are  
25 completed early in construction. Construction surveys,  
26 on the other hand, are almost continuous. Wharves are  
27 being constructed in the summers of year one, year  
28 two and year three. Borrow and concrete work is  
29 continuous, except during break-up. Clearing, which  
30 occurs in three winters, precedes pipe installation by



Templeton, Doyle, Hernandez  
In Chief

1 a year. Two winters of clearing are for construction  
2 along the Mackenzie Valley and the third is for the  
3 connecting alignment to Prudhoe Bay. Station  
4 construction, once it commences, is continuous and  
5 will also continue into the operational phase of the  
6 project as more stations are built to increase the  
7 throughput of the pipeline. Thus, throughout, there  
8 is a great diversity of activity.

9 Referring to the Foothills  
10 Construction schedule, slide 3B, it is apparent that  
11 scheduling was only of a very preliminary nature when  
12 we undertook this study. Arrow one shows that all  
13 camps, permanent roads, airstrips and pads are  
14 scheduled for completion in the first winter, even  
15 though borrow activities, shown at arrow two, will  
16 continue throughout the next five years.

17 All station site preparation  
18 will be completed in the first winter, arrow number  
19 three. This schedule compels the conclusion that  
20 the scheduling information we had from the Foothills  
21 application was at that time of a preliminary planning  
22 nature.

23 Q Excuse me. Where are  
24 you? I just ran out on page 4-9.

25 A I'm sorry. I'm on page  
26 twelve and I follow the copy in that report.

27 Q Okay.

28 A Commencing the second  
29 paragraph. Recognizing the diversity in duration of  
30 construction work, we felt that another way to convey



Templeton, Doyle, Hernandez  
In Chief

the magnitude of what would be occurring would be to break activities down by construction spread rather than project components.

Given this approach, we divided construction activities into four categories. Perhaps I could have the next slide. I'd refer you to the chart shown on page fifteen of the report. The four categories were surveys and site investigations, clear, grade and support construction, construction and mobilization, and restoration and revegetation.

The most useful geographic differentiation of the route was to consider the Mackenzie Valley and the Prudhoe Bay connections as major routes of spread and then to divide each of these into individual spreads and sections within spreads. We felt that construction activities for each spread in the two major portions of the route would give a clear picture of what was going on at any particular time or location north of sixty degrees. The result is shown as figure four.

Diversity of construction activity north of sixty degrees for CAGPL Singled out are the four most significant components of the project. These are shown in the legend at the bottom of the figure. Namely access roads or airstrips, shown in red; borrow material and stockpiles in blue; compressor stations in brown and the pipeline installation itself, green.

As an illustration of how this chart can be used, note the column under February, year





Templeton, Doyle, Hernandez  
In Chief

three. It's indicated by an arrow. If we just read from the top of that figure down below the arrow, we'll note that surveys and site investigations are nearly complete for the pipeline and facilities at one segment of all the spread from Inuvik to Fort Simpson.

At the same time, in February of year three, clearing and grading of the right-of-way is active on the same spread segment. Roads, airstrips, barrow stockpiling and station pad construction are also in full swing on these spread segments. Mainline construction will be under way on the other segments of spreads A to E. Also the Great Bear River crossing on spread C will be underway. Finally, restoration will be following behind pipeline construction on a number of spread segments.

A major point is clear from figure four. While mainline construction is going on along one-half of the eight hundred miles, a considerable diversity of environmentally significant activities for other components of the project is going on over the other half of the eight hundred miles.

Figure four also shows what is occurring at any point in time, which is particularly important for estimating and organizing manpower requirements for environmental inspection. This figure forms the basis of our first look at the size of the inspection staff that will be required.



Templeton, Doyle, Hernandez  
In Chief

Pre-construction activities.

In the total absence of information on pre-construction or planning activities for the project, we have drawn upon our knowledge of engineering projects to put together a realistic but tight schedule for the many activities that must precede actual field construction. In preparing this schedule, we have divided pre-construction activities into the following categories. These categories are shown at the bottom of the slide:

- . Preparatory investigation and design
- . Final design
- . Specification preparation
- . Tender evaluation and award of contracts, and
- . Mobilization.

The choice of categories is based on several assumptions.

1. Is that considerable effort will have to be expended in preparatory field investigations and preliminary design before final design can be arrived at.

. Another is that detailed specifications must be prepared for all contracts before they can be put out to tender.

We assumed that much work could be done on a cost-plus basis with contractors since this would allow for the most expeditious scheduling of activities for project management. However, specifications would still need to be prepared to govern the contractual arrangements. Whether contracts are bid on a cost-plus or fixed



Templeton, Doyle, Hernandez  
In Chief

1 job basis, it will be necessary to provide for a  
2 tender period, for subsequent evaluation of all tenders  
3 received, and for final negotiation leading to the  
4 actual award of major contracts. IT is only when a  
5 contract has been awarded that a contractor can  
6 commence mobilization of resources in order to carry  
7 out the work.

8 In preparing the schedule  
9 presented in this figure and the subsequent figure,  
10 which is for Foothills, we were careful to dove-tail  
11 pre-construction activities with construction work  
12 on the assumption that the project would be proceeding  
13 on a tight schedule. For example, if we look at  
14 arrow 1, it points out that pre-construction activities  
15 for wharves would need to commence seven months before  
16 any construction could start. We arrived at this  
17 figure by dove-tailing and overlapping activities.  
18 In short, by taking a pipeline or perspective.

19 Preparatory investigations  
20 or designs would be prepared at the same time as  
21 the specifications were being drawn up. This assumes  
22 that the contracts would be awarded on a cost-plus  
23 basis, which would save time by allowing the tendering  
24 of the work, the evaluation of the contractors' bids,  
25 and the award of the contract to occur while actual  
26 investigations and final design were being carried  
27 out. It also means that the contractor could mobilize  
28 his resources and receive final design details when  
29 on-site. If all activities were to be sequential, as  
30





Templeton, Doyle, Hernandez  
In Chief

1 in the case of mainline construction, then the  
2 investigations would be followed by final design,  
3 separation of specifications, tendering, evaluation,  
4 contract award, and finally mobilization. This latter  
5 process would take considerably more time. Thus our  
6 examination of probable scheduling of pre-construction  
7 activities is based on a tight project schedule.

8 Figure 5-A shows the  
9 construction activities commencing in year 1 must be  
10 preceded by up to one year of pre-construction  
11 activity. Station construction, which commences in  
12 year 3, will be preceded by up to two years of  
13 design work with site-selectionn being finalized before  
14 that. Clearly, plenty of time, in some cases a  
15 great deal of time must be set aside for pre-  
16 construction activities.

17 The final point to be made  
18 about figure 5-A is that it applies to preparations  
19 leading to the first season of pipe-laying and would  
20 thus apply all over again to preparations for the  
21 next two seasons of pipe-installation. This fact  
22 becomes significant later when we are examining  
23 manpower requirements for design review. A number of  
24 people have wondered if agency staff would be involved  
25 in preliminary activities and would later be available  
26 for field work. The answer at this point is, "Partly  
27 so." But people will still be required for continuing  
28 design reviews and approval.

29 We will return to this subject  
30 in a more detailed analysis of pre-construction



Templeton, Doyle, Hernandez  
In C hief

activities later.

Operation and maintenance activities. The information available on operation and maintenance activities is of a general procedural nature. Section 13-B of CAGPL's application points out that stations will operate unattended. The right-of-way will be regularly patrolled by aircraft, weekly at runoff, otherwise monthly. The pipeline maintenance will be scheduled for wintertime. If winter maintenance is not possible in emergencies, then helicopters or low ground pressure vehicles will be used. Snow roads or sleigh trains will be used to bring in supplies or to gain access along the right-of-way for maintenance. Fire-fighting equipment will be located at station sites and should fire occur at outside pipeline lands, the application states that these resources would be available to assist local operations.

Let me conclude then our review of the project schedule. The construction schedule for this project as currently proposed will result in almost continuous field activity along the Mackenzie Valley, and in the Northern Yukon for four years. Much of this activity will be year-around and will not be confined to any one geographic location.

THE COMMISSIONER: Excuse me, Mr. Doyle. Do you assert that there ~~would~~ be continuous field activity in both the valley and the Northern Yukon, that is in each area for four years?



Templeton, Doyle, Hernandez  
In Chief

1                   A     There is a sequencing  
2 there, Mr. Commissioner, between the valley. Like the  
3 valley in the case of CAGPL will be constructed  
4 first, and then the --

5                   Q     I'm aware of that.  
6 I'm well aware of that. I'm just saying, are we  
7 to -- you're not then alleging that an analysis of  
8 CAGPL's activities reveals that there will be almost  
9 continuous field activity in the Northern Yukon for  
10 four years?

11                  A     No sir. In the case  
12 of the Northern Yukon it would be for two years,  
13 one during the preparation phase, and one during  
14 the actual construction phase.

15                  Preceding and concurrent  
16 with these construction activities there will be  
17 three years of continuous pre-construction, design,  
18 site conformation, specification preparation, and  
19 the drafting of contracts in preparation for each of  
20 the winters of mainline construction.

21                  In preparing this pre-  
22 construction schedule, we have assumed that some work  
23 could be done on a cost-plus basis. This gives the  
24 tightest construction schedule and thus saves time.  
25 However, this assumption, while being valid for the  
26 purposes of this report, may not be appropriate in  
27 final planning. This Inquiry will undoubtedly produce  
28 terms and conditions that apply to the applicants,  
29 their contractors, sub-contractors, suppliers,  
30 transportation companies, and the like. These terms





Templeton, Doyle, Hernandez  
In Chief

1 and conditions may well recommend a thorough review  
2 and approval of all construction plans, schedules,  
3 designs and contracts, and thus considerably extend  
4 the time required for pre-construction activities.

5 I would now like to turn to  
6 the key activities for control from an environmental  
7 perspective.

8 The key activities required  
9 for achieving environmental control on this project  
10 can best be appreciated by working backwards from  
11 the actual construction plan. Environmental inspec-  
12 tion of mainline activities performed by a team of  
13 trained inspectors, aided by comprehensive manuals,  
14 is obviously a key activity. But for it to be  
15 effective it must be preceded by two other key  
16 activities:

17 . An initial review and approval of preliminary  
18 designs, plans, etc., and following that,

19 . A final review and approval of final designs,  
20 specifications and tender documents prepared by the  
21 pipeline company.

22 These activities would  
23 ensure that all plans and schedules were environmentally  
24 sound and thereby make it possible for the field  
25 inspectors to do an effective job.

26 Preliminary and final reviews  
27 would in turn need to be preceded by a fourth key  
28 activity -- preparation of guidelines, stipulations  
29 and codes. The pipeline company should have these  
30 regulatory documents in hand well in advance of their



Templeton, Doyle, Hernandez  
In Chief

1 submission of plans, designs, and schedules, so that  
2 these documents can be in maximum compliance with the  
3 regulatory documents. If regulatory documents are not  
4 prepared, then there will be no defined basis against  
5 which the designer's views can take place. Such a  
6 situation would greatly hinder the effectiveness of  
7 any environmental control program.

8 Key activities such as  
9 preparing regulatory documentation and conducting  
10 reviews and approvals will require considerable lead  
11 time, but this, we believe, is essential if environ-  
12 mental control is to be achieved on the project.



Templeton, Doyle, Hernandez  
In Chief

1 Pre-construction. When de-  
2 tailed construction plans and schedules have been  
3 prepared without regulatory review and approval it is  
4 highly unlikely that the project field procedures  
5 and schedules of the company will automatically meet  
6 the aspirations of regulatory authorities charged  
7 with protecting the environment.

8 As a result, field inspectors  
9 would be confronted with awesome costs and schedule  
10 implications for any significant rulings they might  
11 deem necessary.

12 For example, consider an  
13 early spring thaw that could cause deterioration of  
14 snow or ice roads. Inspectors would be faced daily  
15 with decisions on terminating travel or removing ice  
16 bridges. The implications of such delays to project  
17 costs, to project management and to Canada would be  
18 substantial. It is evident that schedules, procedures  
19 and contingency plans should be established and agreed  
20 to before such situations develop.

21 As another example, <sup>consider</sup> what  
22 could occur at many of the watercourses to be crossed.  
23 Because of steep banks at a crossing location, the  
24 company's project design may call for a substantial  
25 cutting and grading of river banks, environmentally  
26 unwise in most cases. Inspectors would be confronted  
27 with powerful arguments as to why changes in the plan  
28 could not be made. Changes could require redesign  
29 of the crossings, something that would have to be  
30 done in a distant office. The resulting delays could





Templeton, Doyle, Hernandez  
In Chief

1 cost millions, interfere with testing progress, delay  
2 restoration and so on. Or, again, an inspector might  
3 find himself at a borrow/<sup>pit</sup> confronted by a potentially  
4 detrimental situation. He might ask the local operator  
5 to cease operations for a time, only to hear that the  
6 operator, from the operator, that his contract is to  
7 deliver X yards at P dollars per yard to a stockpile  
8 size. He has obtained a permit and he can not stop  
9 with jeopardizing his contract or the subsequent  
10 construction activities that depend on his completing  
11 his contract on schedule.

12 If a work stoppage were re-  
13 quired to allow investigation of a non-covered arch-  
14 eological site for example, inspectors would probably  
15 meet with little co-operation. Contractors would  
16 claim additional costs or extras before agreeing to  
17 any change in their game plan and they know that the  
18 cost would first have to be agreed to, in writing,  
19 by the project manager. Thus, another party would  
20 enter the negotiations putting the inspector in a  
21 position where he might be strongly tempted to yield  
22 to pressure.

23 The purpose of these examples  
24 is not to down-grade field inspection but to give  
25 some indication that field inspection alone will  
26 meet with limited success in achieving environment  
27 protection unless it is proceeded by the three key  
28 activities. Initial and final design reviews and  
29 the preparation of a regulatory documentation. If  
30 the applicant is to submit plans, designs, schedules



Templeton, Doyle, Hernandez  
In Chief

1 et cetera for preliminary review and approval, then  
2 it should know what level of detail is required and  
3 what standards are to be met. If it does not have  
4 this information, it will determine for itself what  
5 to submit . To offset this problem, we recommend  
6 that the agency set out in detail, the requirements  
7 for preliminary design submission. We envisage that  
8 this could be done by preparing in advance, guide-  
9 lines, codes and stipulations.

10 The preparation of stipula-  
11 tions however, is not something that can be done  
12 overnight. It will require a co-ordinated effort by  
13 all those currently involved in a legislative or  
14 advisory role. It will expose gaps in the existing  
15 legislative base, that for a project of this size,  
16 will need to be filled. We believe that the preparation  
17 of a comprehensive base of stipulations is a key activity  
18 for the achievement of environmental protection.

19 Furthermore, it will be most  
20 important to the applicant, because it will be against  
21 this base, that the adequacy of preliminary designs  
22 will be gauged. If the rules are set down before-  
23 hand and each party recognizes that these are the  
24 bases of judgment, then inefficient negotiations,  
25 arbitrations and appeals can be minimized. Otherwise,  
26 waiting until the preliminary designs have been sub-  
27 mitted to decide what they ought<sup>to</sup>/include may lead to  
28 an arbitrary and unco-ordinated approach. Both the  
29 applicant and the agency must know well beforehand  
30 what will be required. The applicant must know well



Templeton, Doyle, Hernandez  
In Chief

in advance if the required information is to be presented in each submission.

Plans and designs submitted by the applicant must be given preliminary design review and approval and then final design and approval by the agency. This latter approval would result in a "Notice to Proceed" with construction for the section under review. Next slide please.

Figure 6A gives an indication of when these reviews and approvals should be done and how long they should take.

In establishing times and procedures for the reviews, we were guided by the approach detailed in "Towards an Environmental Code" published by the Environment Protection Board in 1974. The following summarized the procedure outlined in that report.

- a) Construction shall not be initiated without the written approval of the Agency.
- b) A summary work schedule analysis for the entire pipeline system shall be submitted to the Agency. This would include data collection activities; submittal and approval activities; pre-construction and commissioning activities; and other pertinent data required by the Agency. The schedule would be regularly updated.
- c) The preliminary design for a construction segment shall be submitted for approval up to a 180 days would be allowed for review. In appropriate cases this requirement could be waived.





Templeton, Doyle, Hernandez  
In Chief

- 1 d) A Notice to Proceed may be applied for on con-  
2 struction segments for which the preliminary design  
3 has been approved. This submission will be  
4 supported by a final design, reports, data,  
5 schedules, et cetera.
- 6 e) The Agency shall review each such application  
7 within 90 days and issue a Notice to Proceed when  
8 all matters are in conformity with regulations,  
9 codes, statutes, et cetera. Such a Notice shall  
10 authorize construction of that construction seg-  
11 ment only.
- 12 f) The Permittee may appeal a decision of the Agency  
13 within 30 days to the appropriate authority.
- 14 g) The Agency may at all times inspect on-site acti-  
15 vities of the Permittee and may issue suspension  
16 decisions should any activity threaten serious  
17 or irreparable harm.

18 In applying this procedure  
19 to the pre-construction schedule, we inserted within  
20 each key activity the estimated time required to  
21 review a particular construction segment. However,  
22 there is also a need for an overall review and approval  
23 in principal of the total project before either the  
24 preliminary or final reviews take place. This over-  
25 all review would apply to the total system plan,  
26 major route selection, particular site locations and  
27 the overall schedule. It could include some of the  
28 specific reviews and approvals indicated in this  
29 figure, Figure 6A, and could extend for some time  
30 before these reviews.



Templeton, Doyle, Hernandez  
In Chief

The implications of the review process to the schedule of activities are illustrated here in Figure 6A. Consider the first item in the list of project components - location surveys. We recommend that the specifications for carrying out location surveys in any spread should be reviewed and approved before contracts are tendered. This is indicated by a white triangle at the appropriate point on the schedule and an estimate of the number of days such a review would take. The persons needed to make the review would be proportional to the task itself and the number of construction spread segments coming up for review at that time.

We recommend that preliminary designs and the selection of sites for the many sizes of camps be given preliminary review and that following final design and the preparation of specifications, a final review and approval be undertaken. Final reviews are indicated by a solid black triangle and an estimate of the number of days required. If everything were resolved by the reviews a "Notice to Proceed" with camp construction could be issued. A similar approach for roads, borrow, staging areas, communication towers and wharves is required. In the case of supplies and fuel, a single review and approval would be sufficient since it is assumed that siting has been determined by the location of major facilities and would be taken into account when those are being reviewed and approved. In the case of snow/ice roads, we recommend review of preliminary route



Templeton, Doyle, Hernandez  
In Chief

1 selection and design, followed by a final review when  
2 designs and specifications have all been worked out.  
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Templeton, Doyle, Hernandez  
In Chief

Project components listed under support facilities could possibly be contracted on a cost plus basis. Thus, associated with each contract, there would be a separate set of documents describing the equipment and manpower required for the contract. These would be put out to tender and contractors would bid unit prices for the rental of equipment, wage rates and a time schedule for the contract.

General equipment specifications would then need to be approved. Once these were approved, it would not be necessary to review them in every instance. Accordingly such reviews and approval is not shown in this figure. In essence, we anticipate that the successful contractor would mobilize his forces and then receive the detailed designs and specifications to proceed with the job.

The detailed designs and specifications would describe the facility, plant or site to be constructed and the construction methods. These documents would not necessarily have to be in the form of a conventional contract document as the contract for the work would be covered by the previously described tender document. The information could be in the form of a description, or data sheets. Whatever the format, the details must be set down for critical review and approval and to enable field inspectors to perform compliance checks.

In the case of pipeline construction proper, it is worth noting that many of the



Templeton, Doyle, Hernandez  
In Chief

siting, route and access locations will have been determined during the preceding survey and support facility siting activities. Hence, the advantage of the two-staged approval. Two-staged approval also means that less review is required for the final specifications.

Referring again to figure 6A, we have indicated that a single final review of the detailed clearing specifications will be adequate, although the time for such final reviews has generally been set at ninety days. The same applies to installation and revegetation specifications. In the case of river crossings, preliminary reviews would be required but they will have to be done in phase with the route location surveys, otherwise crossing sites and therefore the route may have to be altered at an advance stage of construction.

Station design could be examined in two stages. First when such matters as slope stability, proximity to rivers, archaeological resources and wildlife areas are considered and; second, when the final design is completed but before the station goes out to tender.

In most cases then, two design review functions are essential if the plans for the project are to be of the calibre to achieve environment protection. If the agency neglects these reviews, the field inspection staff will be faced with an impossible objective.

The final pre-construction work



Templeton, Doyle, Hernandez  
In Chief

1 assignment of the agency will be to identify site-  
2 specific problems that will be important during design  
3 reviews and that will require the attention of field  
4 inspectors later on. For some locations, site specific  
5 concerns will have been identified when codes, et cetera,  
6 were being prepared. Thus, the agency should be  
7 continuously updating this information as it becomes  
8 available from many different sources.

9 The types of site-specific  
10 concerns are legion and Mr. Hernandez has discussed  
11 many of them this morning. To recapitulate then,  
12 guidelines, codes and stipulations must be prepared  
13 in sufficient time before construction begins so that  
14 the applicant can prepare preliminary plans in  
15 compliance with them. Designs and plans must then  
16 receive preliminary approval and specifications, tender  
17 documents and final designs must receive final review  
18 and approval before any construction activity  
19 commences.

20 There is also a continuing  
21 need to compile the many site-specific concerns for  
22 consideration during design review and to assist field  
23 inspectors at a later date.

24 Turning to construction. Next  
25 slide please. Environmental stipulations and design  
26 reviews are not enough, of course. They must be  
27 complemented by a strong, active environmental inspection  
28 and monitoring program. The fielding of a competent  
29 inspection force is key to the achievement of environ-  
30 mental protection on this project.





Templeton, Doyle, Hernandez  
In Chief

1 If regulations go unenforced,  
2 the field construction will deteriorate--the field  
3 situation, excuse me, will deteriorate and then  
4 arguments of custom and habit will confront those who  
5 try to upgrade enforcement at some later date. The  
6 job of inspection will not be a simple one. It will  
7 require people of considerable experience, capable  
8 of weighing alternatives and making field decisions.

9 In order to better understand  
10 what inspectors will be confronted with and to explain  
11 what could be involved at some locations, we have  
12 prepared figure 7, typical project developments. This  
13 figure shows the sequence of activities that could be  
14 typical of the work done on the project.

15 We are assuming that initially  
16 a temporary camp would be set up with fuel storage and  
17 supplies for surveys and site investigations. Preliminary  
18 surveys for location of the wharft site would then be  
19 carried out. This would require clearing of a small  
20 area for subsurface investigations of both the wharf  
21 site and associated offloading area. If the investi-  
22 gation results were not satisfactory, some alternate  
23 area would be examined. In forested areas, such a move  
24 would require clearing access. These investigations  
25 would result in the finalization of wharf, say at  
26 location A in figure 7.

27 The next activity would be  
28 to locate an access route to the station site and  
29 local borrow pit B. A drilling rig might then be  
30 transported along the access route to borrow area C to



Templeton, Doyle, Hernandez  
In Chief

1 determine the extent, depth and suitability of the  
2 borrow material. If the area did not prove to contain  
3 enough borrow, then access would have to be selected  
4 to alternate sources of borrow and these would have to  
5 be partially cleared and test drilled in the same way.  
6 Alternate borrow sites may not be nearby, in which  
7 case the originally chosen access route B might be  
8 abandoned.

9 A foundation investigation  
10 would be made of the selected station site with  
11 associated limited clearing. Similarly the airstrip  
12 site E, water intake location F, the sewage lagoon  
13 G, the communication tower site H, would be investigated.

14 The importance of having  
15 inspectors on site during such preliminary surveys  
16 and investigations is apparent because considerable  
17 environmental damage can occur at these times. Land is  
18 being committed to certain uses and subsequent project  
19 activities merely increase the level of use. If sites  
20 or routes are poorly chosen, they will remain so during  
21 construction activities. A competent, well-trained  
22 inspector with good support, readily available, will  
23 thus be required.

24 Following site finalization,  
25 for the various facilities, work will commence in the  
26 wharf area with location surveys of the offloading  
27 area. Camps, fuel, equipment, materials and supplies  
28 for wharf construction would be moved in. The access  
29 road from the wharf to the borrow pits will be cleared  
30 and equipment will be moved in. Depending on the



Templeton, Doyle, Hernandez  
In Chief

1 distance to borrow areas, an independent camp may be  
2 set up together with fuel storage, et cetera. Clearing  
3 of sites, disposal of slash, stockpiling merchantable  
4 timber and hauling material from borrow areas would  
5 soon get under way.

6 Clearing of the airstrip,  
7 hauling for station pads, erection of larger camps,  
8 pumping of fuel from barges to storage, clearing for  
9 water supply line and intake structure, clearing and  
10 excavation for sewage lagoon, the construction of  
11 foundations for the communication tower, the tower  
12 erection and the off-loading of major equipment for  
13 mainline clearing are some of the activities that  
14 will precede pipeline installation.

15 During these activities,  
16 control and co-ordination will be crucial. Monitoring  
17 the environmental effects of certain activities will  
18 be another role for inspectors. If there is a  
19 potential problem, one that is definable in terms of  
20 measurable quantities, then measurements should be  
21 taken at appropriate intervals. In such cases, pre-  
22 determined tolerances would be established, such as  
23 remedial action would be required by the project if  
24 these levels were exceeded.

25 Monitoring the feedback into  
26 the control function of the project is valuable and  
27 necessary.  
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Templeton, Doyle, Hernandez  
In Chief

Starting to operations and maintenance. Activities of the agency during the operations and maintenance phase are as yet hazy. It is clear, however, that certain project operations will require close attention -- emergency activities, planned maintenance of the right-of-way, erosion control, slope stabilization, frost heave and icing problems, routine aircraft patrols, station supply activities, and scheduling of major overhauls. Most of these operations will require co-ordinating and reporting with the agency, particularly in the early years as experience is being built up operating the system. The establishment of channels for direct communication and information exchanges will be the key to maintaining environmental quality during the operational phase of the pipeline.

Let me conclude then, our review of key activities. The preparation of stipulations, guidelines and/or codes before any plans are submitted by the pipeline company is of prime importance. This is because the regulatory authority should consolidate and co-ordinate governmental requirements into one body of information which will then facilitate administration and control procedures. This will also be important to the pipeline company because otherwise they will be confronted with a multitude of requirements being imposed on them from different sources. In addition, it will allow the pipeline company to prepare submissions in compliance with these stipulations and



Templeton, Doyle, Hernandez  
In Chief

1 thus avoid delays and confusion in the review and  
2 approval process.

3 Two stages of approval  
4 generally seem desirable, one at a preliminary  
5 design stage, and the second at the final design  
6 stage before contracts are tendered.

7 Field inspection will be  
8 important to the achievement of environmental  
9 protection. Inspectors will need to be well-trained  
10 and be ready to commence inspection before the field  
11 activities of the pipeline get under way. As  
12 particular problems arise, they will require the  
13 support of additional expertise for assistance.  
14 Site-specific problems will need to be constantly  
15 updated so that inspectors can not only enforce  
16 stipulations but also respond to a variety of local  
17 conditions.

18 Continuing review and  
19 inspection of pipeline right-of-way maintenance plans  
20 and procedures will be required for some time follow-  
21 ing completion of construction.

22 Turning now to estimated  
23 manpower and timing requirements. To summarize this  
24 section, two years before any construction work starts,  
25 a core group of eight people should prepare the  
26 goals, objectives and modus operandi for the agency.  
27 Then the core group should acquire 15 management,  
28 engineering, and scientific staff to co-ordinate  
29 the task of preparing all the "rules and regulations"  
30 for the project. These senior staff should be



Templeton, Doyle, Hernandez  
In Chief

1 appointed , relocated and trained 18 months before  
2 any field activity gets under way. It will take them  
3 nine months of intensive effort, with support and  
4 assistance from many agencies, to develop the required  
5 detailed procedures, guidelines, codes, and stipula-  
6 tions, and also to establish a co-ordinated schedule  
7 with the pipeline company.

8 By the time the  
9 senior staff have completed their documentation,  
10 design review staff should be acquired and trained  
11 early enough that their design and reviews could take  
12 place in the nine months preceding any construction  
13 activity. Design review staff would peak at 60 in  
14 the second year of construction and numbers would vary  
15 throughout depending on the flow of submissions from  
16 the applicant.

17 Field inspection staff for  
18 the first year of field activity would reach 23.  
19 Regional field support expertise would be required  
20 to respond to particular problems. In the second,  
21 third, and fourth years, over 40 field inspectors  
22 will be needed. The numbers will decrease to 24  
23 in the fifth year and 10 in the sixth year.

24 Total manpower requirement  
25 will peak at 120.

26 In arriving at manpower  
27 estimates, we have assumed a certain level of  
28 inspection and control, and thus these numbers will  
29 be sensitive to increases and decreases in that  
30 level of control.





Templeton, Doyle, Hernandez  
In Chief

Looking at pre-construction.  
Long before any field activity begins, the pipeline company will be making decisions on the acquisition of barges, pipe, construction equipment, etc. They will have to make these decisions as early as possible to allow for a long delivery time. Because many of the decisions will be significant environmentally, the regulatory agency must be prepared to review them before they are acted upon.

Hence the dilemma confronting those in government who would establish a single regulatory agency for this project. If they recognize the magnitude of the task and proceed to form an agency they will be accused of prejudging the applications before the National Energy Board and the Department of Indian Affairs & Northern Development. If they take no action until some sort of approval in principal is given, they will be caught unprepared to control the project.

In the belief that it is better for the government to be prepared to control the project, and mindful of this dilemma, we are proposing a six-phased approach to setting up the agency that calls for modest beginning with the acquisition of a growing number of staff later on as the construction date nears. The six phases (which are described further later on) are as follows:

Phase 1 - Formation

Phase 2 - Orientation

, Phase 3 - Stipulations



Templeton, Doyle, Hernandez  
In Chief

Phase 4 - Pre-construction review and approval

Phase 5 - Construction and restoration inspection

Phase 6 - Post-construction and termination.

Phase 1, which would last about three months, would see the formation of the agency by a core group of eight senior people. These people would be the key to the success of the agency. They would need to be skilled managers capable of handling the main responsibilities of the agency. Their first task would be to establish the goals, objectives, modus operandi, and general liaison procedures of the agency.

After Phase 1 was over, senior staff would be brought in for the subsequent phases. During Phase 2, they would spend time becoming familiar with the project and the locale. During Phase 3, they would prepare the guidelines and stipulations affecting the innumerable decisions that the pipeline company will want to make when approval is given.

Senior staff for Phase 3 would have to be representative of the major disciplines and expertise needed to co-ordinate the preparation of the guidelines and stipulations. We estimate a need for nine people with some junior support staff to bring the total to 15. Phase 3 must be over before the project is approved in principal or the agency will not be prepared to review and approve the company's decisions, which will apply to such matters as when mainline construction should commence, what seasonal limits should be observed, whether protective shoes



Templeton, Doyle, Hernandez  
In C hief

1 or cleats should be called for in equipment specs,  
2 what numbers and types of equipment will be required,  
3 and so on. Unless the agency is prepared and ready  
4 to review such matters with the pipeline company,  
5 these decisions will be made without agency input.

6 Phase 4 will see the first  
7 large influx of people to the agency to handle  
8 pre-construction reviews. These reviews will require  
9 senior people in geotechnical, hydrological and civil  
10 engineering, as well as botanists and biologists  
11 with expertise in fish and wildlife. Expertise in  
12 air and water quality and also in archaeological  
13 salvage will be required. Forestry and land use  
14 planning input will also be important. Generally we  
15 envisage that the review staff would be organized  
16 into teams to examine various aspects of the pipeline  
17 company's submissions, such as stations, rights-of-  
18 way, and so on.

19 To estimate manpower  
20 requirements for this phase, we grouped personnel  
21 into the following broad categories:  
22 . geotechnical hydrological and civil engineers  
23 . botonists and foresters  
24 . environmental engineers  
25 . fish and wildlife biologists  
26 . planners  
27 . archaeologists and personnel for other resources.

28 We reviewed the pre-  
29 construction schedule of activities, identified the  
30 disciplines that would be involved with each review,





Templeton, Doyle, Hernandez  
In Chief

1 estimated how much time each discipline would need,  
2 and then aggregated the times under the above  
3 categories. In doing this, we referred to the  
4 potential interaction matrix presented in Volume III,  
5 "Environmental Atlas" by the Environment Protection  
6 Board. This matrix plots project components against  
7 environmental components and identifies the magnitude  
8 of possible impact from their interaction. It  
9 helped us decide which aspects of the project would  
10 require review, and which disciplines would be involved.

11 The results are presented in  
12 figure 8. This is design review and manpower  
13 requirements. It is apparent that there is a fairly  
14 constant demand for review staff over a three-year  
15 period, with requirements peaking at 60 in the second  
16 year of construction. In addition, a total of 17  
17 senior staff and core group members would be managing  
18 the agency, bringing the peak demand for office  
19 staff to 77 persons.  
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Templeton, Doyle, Hernandez  
In Chief

Turning now to construction. To determine the manpower requirements for phase four, construction and restoration inspection, we examined the construction plans in terms of the breakdown we discussed in figure 4. Figure 4 set out what was happening at each location at any given point in time. This enabled us to determine how many inspectors would be required for each construction spread segment, according to the type of activity going on there.

Our findings were as follows for surveys and site investigations: Surveys and subsurface investigations of borrow areas, wharves, station sites, airstrips, roads and the pipeline route will be required to determine suitability of location, et cetera. We estimate that two inspectors will need to be on hand at each spread during this work. One for facilities and borrow areas and one for the pipeline route and station sites.

Clear, grade, and Construct support facilities: Following surveys and site investigations, borrow operation will begin. Roads, station pads, wharves, airstrips will be cleared and constructed. Fuel storage, fuel, materials, and supplies will be brought in and camp services will be installed in camp set up. We estimate that two inspectors will be needed at each spread. One for facilities and one for pipeline right-of-way clearing. The two inspectors from surveys and site investigations could in some cases also be used to assist on these operations when available.



1 Construction: During  
2 construction of compressor stations and the pipeline,  
3 we estimate that three inspectors will be required  
4 on each spread. Two for pipelining and one for  
5 stations. Inspectors from site investigations and  
6 support facilities could also be used here as additional  
7 support when available. Summer construction of major  
8 river crossings will require two inspectors at each  
9 crossing.

10 Revegetation: We estimate  
11 that one inspector will be required for each spread,  
12 plus perhaps two additional teams of two inspectors  
13 in years four and five to inspect regrowth and one  
14 additional team of two in year six for the same  
15 purposes. These are shown and summarized in the next  
16 slide.

17 Using these estimated levels  
18 of effort, we have prepared figure 9, Field Inspection  
19 Manpower Requirements. Generally, it appears that  
20 forty field inspectors will be required in most years.  
21 There is significant variation in the numbers required,  
22 but this can be reduced through planning. No  
23 allowance, however, has been made for staff rotation,  
24 turnover, vacations, sick leave, et cetera.

25 We recognize that inspectors  
26 will not be able to address with full competence all  
27 matters before them. Similarly, we recognize that it  
28 is impractical to staff to such a level that all  
29 disciplines are represented at all construction sites.  
30 Nevertheless, we feel that by using the general category



Templeton, Doyle, Hernandez  
In Chief

1 of inspector, by thoroughly training these people and  
2 by supplementing them with regional expertise drawn  
3 with diligent attention to scheduling of resources,  
4 from office review staff at such centers as Fort  
5 Simpson, Norman Wells and Inuvik, the job of  
6 construction inspection can be carried out in an  
7 effective fashion.

8 Operations and Maintenance:

9 At this point in the planning process, phase six, Post  
10 Construction and Termination, we estimated that  
11 initially about five people will be required in each  
12 region. Four of these would be inspectors and one  
13 would be a regional environmental supervisor.

14 Timing of Manpower Acquisition:

15 Given that these are the personnel required to staff  
16 the agency through all six phases, when should these  
17 personnel be acquired? The answer depends on several  
18 factors:

- 19 -project status and timing
- 20 -the level of control desired by government
- 21 -whether or not a phased approach is taken to  
22 establishing the agency
- 23 -how much training and familiarization agency  
24 personnel require
- 25 -the work involved in drafting stipulations,  
26 procedures and manuals for agency operations,  
27 particularly for design review, construction  
28 inspection and environmental monitoring

29 Next slide please. With these  
30 factors in mind, we have taken the manpower estimates





Templeton, Doyle, Hernandez  
In Chief

1 from the previous two figures, figures 8 and 9, and  
2 together with the concept of establishing a core group  
3 and senior staff, prepared a bar chart of total manpower  
4 requirements for environmental control. This is shown  
5 as figure 10A and 10B. 10A being for CAGPL.  
6 10B for Foothills.

7 If year one is the first  
8 year when field activities commence, it is clear that  
9 the minimum lead time required is twenty-four months.  
10 Another point, when the applicant is informed of the  
11 agency's review requirements and times, it will want  
12 to adjust schedules by advancing preliminary and final  
13 design submissions so that the overall construction  
14 schedule is not substantially altered.

15 To allow for this eventuality,  
16 it therefore seems that the planning for an agency  
17 should proceed on a priority basis. This would lead  
18 to the earliest possible formation of the agency and  
19 appointment of the core group if construction is to  
20 commence before 1980.

21 To conclude then on manpower  
22 and timing requirements, months before any field  
23 activity begins, the pipeline company will be making  
24 decisions and commitments for equipment and supplies  
25 that have extended delivery times. The regulatory  
26 authority must therefore be prepared at that time to  
27 review and approve those decisions that have  
28 environmental consequences.

29 However, this gives rise to the  
30 dilemma; will government prejudice the present hearings



Templeton, Doyle, Hernandez  
In Chief

1 and inquiry by moving to establish an agency well in  
2 advance of any formal decision? We have concluded that  
3 this can be overcome by forming a core group of eight  
4 people to head the agency. This group should be  
5 formed two years before any construction activity  
6 starts. Initially it would establish the framework  
7 and ground rules to guide the work of the agency.

8 Senior staff with some junior  
9 assistance should be added eighteen months before  
10 construction activity. These staff together with the  
11 core group would spearhead the preparation of stipu-  
12 lations, et cetera. To minimize early commitments  
13 of manpower, the detailed work of preparing the  
14 stipulations, et cetera, should be given on a contract  
15 basis to other agencies for preparation. This process  
16 would ensure that the formal control requirements were  
17 spelled out for the pipeline company and for agency  
18 personnel to be subsequently added for the design  
19 review work.

20 Design review staff of  
21 geotechnical, hydrological and civil engineers, botanists  
22 and foresters, environmental specialists, biologists,  
23 planners and other specialists, such as archaeologists,  
24 would be required nine months before construction.  
25 At the peak of the design review activity, sixty  
26 additional personnel would be required.

27 A field inspection staff of  
28 up to forty people would be required at the peak of  
29 construction. A considerable number of these would  
30 be required immediately after field activity commences.



Templeton, Doyle, Hernandez  
In Chief

1 Additional lead time to train and familiarize these  
2 staff may be required.

3 Moving ahead then to the final  
4 part of this report, deals with our conclusions and  
5 recommendations with regards to the agency, I'm now  
6 on page 66; by first defining the agency and then  
7 recommending a phased approach to its establishment.

8 Definitions:

- 9 1. The agency is an administrative body, duly  
10 established by law to enforce all Federal,  
11 Territorial and local statutes, regulations,  
12 laws, and codes, related to every aspect of  
13 environmental protection with regard to the  
14 preliminary planning, design, construction and  
15 commissioning of the Mackenzie Valley Gas Pipeline  
16 project.
- 17 2. The agency is established for this specific  
18 project only.
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Templeton, Doyle, Hernandez  
In Chief

- 1                   3.                   The agency will have a limited  
2                   life and will cease to exist following a specified  
3                   post-construction period to complete the commissioning  
4                   of the facilities, the restoration of disturbed lands  
5                   and any required post-construction evaluations.  
6                   Authority would then be transferred by the appropriate  
7                   mechanism to other agencies.
- 8                   4.                   The agency will bring together those functions  
9                   of all existing federal and territorial regula-  
10                  tory authorities which affect the project.
- 11                  5.                   The agency will be given such additional powers  
12                  as is requires to achieve environmental protection  
13                  in the broadest sense on this project.
- 14                  6.                   A federal cabinet minister will be designated as  
15                  being responsible for the agency and this minister  
16                  shall be the ultimate authority in all matters  
17                  relating to the work of the agency or appeals  
18                  against decisions of the agency.
- 19                  7.                   The agency shall function under the direction of  
20                  the authorized officer. Some of the duties and  
21                  responsibilities of the Authorized Officer have  
22                  been set out in Section 8 of "Towards an Environ-  
23                  mental Code" by the Environment Protection Board  
24                  in their publication of 1974.

25                                   Looking at the Phased Approach  
26                   to establishing an Agency. We pointed out earlier  
27                   that government is confronted with the dilemma when  
28                   considering the establishment of an Agency to control  
29                   this project, and we concluded that this in part could  
30                   be overcome by establishing an agency in phases rather



Templeton, Doyle, Hernandez  
In Chief

1 than all at once. The six phases and the management  
2 strategy involved in setting them up are as follows:

3 Phase I - Agency Formation.

4 The first task for the agency  
5 will be to establish its goals, objectives, modus  
6 operandi, and liaison with other agencies as well as  
7 a communication system with the applicant. The  
8 management strategy to achieve this might be to form  
9 a core group headed by an Authorized Officer, and then  
10 have this group, in a mission-oriented task, prepare  
11 the ground rules for the functioning of the agency.

12 Phase II - Orientation and  
13 Training.

14 This phase will mark the ac-  
15 quisition by the agency of senior staff who could be  
16 either seconded from federal and territorial depart-  
17 ments or hired directly. We recognize that both with-  
18 in and outside government there are growing numbers  
19 of people who have been involved with this project  
20 in one way or another and these could be an import-  
21 ant source of staff. If such sources can not be  
22 tapped then time will have to be allowed to acquire,  
23 train, and orient senior staff to the project and to  
24 the agency. These staff must have the expertise which  
25 the agency needs to draw upon to carry out its job.  
26 Such senior people are most likely to already be  
27 carrying a considerable work load in their present  
28 positions, so the disruptive aspects of seconding  
29 people to the agency must be taken into account. The  
30 agency must acquire senior personnel for continuity



Templeton, Doyle, Hernandez  
In Chief

1 through construction and to meet the tremendous time  
2 constraints that could confront the agency.

3 Phase III - Stipulations.

4 We believe that the prepara-  
5 tion of stipulations, guidelines, codes, detailed  
6 procedures, and an appeal mechanism is vital to the  
7 functioning of the agency. We also recommend that  
8 these stipulations be prepared in advance of any  
9 approval of the project. In preparing these, the  
10 agency could assign the work to different departments  
11 on a contract basis. Upon completion of the contracts,  
12 the agency's senior staff and core group would mould  
13 the various inputs into a comprehensive manual for  
14 the project. This manual would serve as the basis  
15 for review of design submissions. It would also be  
16 the basis upon which field inspectors would record  
17 the performance and compliance of the pipeline company.

18 Problems that can be antici-  
19 pated will arise as a result of the current hearings  
20 before the National Energy Board and this Inquiry.  
21 These problems may include the question of whether  
22 or not the general siting and routing is acceptable  
23 as it is currently proposed. Such difficulties should  
24 be addressed in the formative stages of the agency  
25 when the modus operandi et cetera are being worked  
26 out by the core group.

27 The core group and senior  
28 staff should utilize other government departments on  
29 a priority basis but if these departments can not  
30 meet the time and budget constraints of the agency





Templeton, Doyle, Hernandez  
In Chief

1 then the agency should be free to go elsewhere for  
2 the required input. It will also be important that a  
3 senior management and core group exist through the  
4 life of the agency. In this way individuals will  
5 identify with the objectives of the agency and their  
6 success on the job will be contingent upon the success  
7 of the agency. From a management viewpoint, it will  
8 be important that the authorized officer heading the  
9 agency be free to accept, reject or replace staff,  
10 particularly those who do not function effectively  
11 within their own working group. The nature of the  
12 challenge is such that the best management skills will  
13 be required to plan, organize, and run the agency.  
14 Those responsible should possess proven management  
15 skills and be supported by the required technical  
16 expertise.

17 Phase IV - Preconstruction  
18 Review and Approval.

19 The importance of this phase  
20 has been discussed at some lengths. This phase will  
21 mark the first major influx of staff to the agency.  
22 From a management and timing viewpoint, considerable  
23 time will be lost here unless phase III has been  
24 successfully completed. If Phase III has been completed,  
25 then the staffing requirements will not be as  
26 difficult to meet, because what is required generally  
27 of the pipeline company, will have been spelled out  
28 in the stipulations. This work will require that  
29 staff review preliminary and final designs for compliance  
30 with a set of stipulations and therefore their





Templeton, Doyle, Hernandez  
In Chief

1 work will not be as difficult as it would be if such  
2 stipulations did not exist. Throughout this phase  
3 the senior staff and core group will be receiving  
4 updated and site-specific information from other  
5 organizations and departments. It will be their job  
6 to communicate any changes to the pipeline company  
7 as they arise. It will be important throughout this  
8 phase that the agency headquarters be at the same  
9 location as that of the pipeline company.

10 Phase V - Construction and  
11 Restoration Inspection.

12 The difficulties confronting  
13 field inspection will be considerably alleviated if  
14 there is a thorough documentation of procedures, and  
15 requirements in the form of an inspection manual.  
16 Also, the pre-construction reviews of Phase IV will  
17 greatly ease the inspection task. Some staff that  
18 have been involved in Phase IV may be available for  
19 Phase V; however, the activities of Phase IV, while  
20 being intense before construction starts, also reoccur  
21 preceding two subsequent mainline construction seasons  
22 in the case of CAGPL. As a result, a mass move-  
23 ment of personnel to field inspection activities of  
24 Phase V will not be possible as a general rule,  
25 although some movement and exchange of personnel would  
26 benefit the total process and enhance the level of  
27 performance of individuals.

28 It will be important in  
29 Phase V to ensure that inspection is organized so  
30 that it parallels the geographic breakdown of the



Templeton, Doyle, Hernandez  
In Chief

1 applicant's activities. Thus one can anticipate in-  
2 spection being organized around the various construc-  
3 tion spreads with additional support expertise being  
4 available on a regional basis, for example, Fort  
5 Simpson, Norman Wells, and Inuvik.

6 Many problems will confront  
7 the inspection staff. It will be difficult for them  
8 to operate with authority when living in construction  
9 camps and sharing everything, including the climate,  
10 with the construction workers. Their effectiveness  
11 can also be influenced by project personnel because  
12 any resident inspector, of necessity, is dependent  
13 upon project staff, for services such as truck main-  
14 tenance, living accommodation, and the use of communica-  
15 tions equipment. It will be important to remember  
16 such difficulties when detailed planning of this  
17 phase is undertaken. It has also been mentioned earlier  
18 that certain environmental monitoring duties will fall  
19 to the inspection staff, but it may be possible to  
20 utilize a reporting system by project personnel to  
21 accomplish monitoring for items which have an estab-  
22 lished standard procedure for measurement.

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Templeton, Hernandez, Doyle  
In Chief

1 Phase VI -- Post  
2 Construction and Termination. Limited staff will be  
3 required to inspect regular and emergency repair  
4 activities of the pipeline company. In a short  
5 period these duties should be channelled to other  
6 departments within the Federal and Territorial  
7 Governments.

8 Before the core group  
9 and senior staff group are dissolved, it may be  
10 advisable to have them prepare their recommendations  
11 for coordinating government interest in other large  
12 projects.

13 If this phased approach  
14 to the establishment of a single regulatory authority  
15 for the Mackenzie Valley gas pipeline is adopted,  
16 further defined, and then implemented, we believe  
17 that environmental control will become a reality. The  
18 early phases, however, must be commenced with  
19 sufficient lead-time to ensure their completion before  
20 any submissions are received from the pipeline  
21 company. It will be a difficult task, because  
22 stipulations, design reviews, or inspection alone  
23 will not achieve environment protection. It will take  
24 an integrated effort from a mission-oriented group to  
25 achieve this goal. Thank you.

26 THE COMMISSIONER: Thank you  
27 very much, Mr. Doyle.

28 MR. GOUDGE: I wonder, sir,  
29 if this might be an appropriate place to break for  
30 lunch.





Templeton, Doyle, Hernandez  
In Chief

1 WITNESS TEMPLETON: I wonder  
2 if I could have just one minute to summarize.

3 THE COMMISSIONER: Sure.

4 WITNESS TEMPLETON: Not  
5 summarize but make the recommendations.

6 The Environment  
7 Protection Board recommended that a single agency  
8 be established to control the pipeline project. The  
9 evidence you have just heard shows that the  
10 establishment of a single agency is in my opinion  
11 feasible.

12 However, we have seen  
13 that the lead-time necessary to accomplish this may  
14 well require a two-stage approval of the project.  
15 Firstly, in principle, and then as project approval.  
16 This would provide the necessary lead-time to get the  
17 agency functioning before the detailed approvals  
18 were required.

19 I'll talk about this  
20 more this afternoon regarding the land use planning.  
21 In conclusion then, Mr. Commissioner, the establishment  
22 of a single regulatory agency should in my opinion  
23 be a term and condition for government in approving  
24 any pipeline project.

25 I think we could break  
26 for lunch now if that's satisfactory.

27 MR. GOUDGE: Yes, sir, and  
28 then after lunch I think Mr. Templeton will conclude  
29 with his land use proposals.

30 THE COMMISSIONER: Just before



Templeton, Hernandez, Doyle  
In Chief

1 we break, back in July I met informally with  
2 counsel for the parties and indicated to them that  
3 the matters that I felt they should deal with in  
4 their final submissions.

5 After that I met with  
6 Mr. Steeves and Mr. Anthony in Vancouver and told them  
7 the same things I had told counsel at the informal  
8 meeting we had in July and I was going to do the  
9 same for Mr. Veale at lunch today and it occurred to  
10 me that that it would be appropriate to invite Mr.  
11 Templeton to join us. So, we don't really have  
12 any rules we live by here but I think counsel for  
13 the Environment Protection Board or whatever its  
14 reincarnated version is. So maybe if you would join  
15 us, Mr. Templeton, that would mean that I will have  
16 informally indicated to all counsel what areas I  
17 think they should spend their time preparing.

18 Okay.

19  
20 (LETTER FROM PROF. L.C. BLISS RE: COASTAL  
21 ROUTE VS. INTERIOR ROUTE, MARKED EXHIBIT 832)  
22 (STATEMENT OF EVIDENCE BY C.H. TEMPLETON PANEL,  
23 MARKED EXHIBIT 833)  
24 (PROCEEDINGS ADJOURNED TO 2:00 P.M.)  
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Templeton, Doyle, Hernandez  
In Chief

(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

MR. GOUDGE: We're prepared to resume, sir. But before we return to Mr. Templeton, I have a letter that was written by Professor Geist, who you will recall was a witness some time ago before the Inquiry, written to Mr. Scott. It's part of the correspondence that Mr. Jakimchuk and Professor Geist have had. It's in answer to Mr. Jakimchuk's letter which was tendered; I would propose that this letter simply be tendered, and I have copies for my friends as well.

Then, sir --

THE COMMISSIONER: Sorry, what's --

MR. GOUDGE: -- it's a letter dealing with Mr. Jakimchuk's letter that was filed about six months ago dealing with caribou research; rather than go into the details I'll let the letter speak for itself.

Mr. Gibbs indicated to me just before we resumed, sir, that he would like to address some remarks to you, sir. Perhaps he could do that now.

MR. GIBBS: Mr. Commissioner, this has reference to a statement by Board counsel on September 24th, which was the last hearing date before yesterday when neither Mr. Hollingworth nor myself were present, and it has to do with the program of completing the Inquiry by way of each counsel addressing the Inquiry.



Templeton, Doyle, Hernandez  
In Chief

1 To refresh your memory, sir,  
2 perhaps, as it's only a few lines, I could read  
3 what Commission counsel said. This is on September  
4 24th, at page 29733.

5 THE COMMISSIONER: Who said?

6 MR. GIBBS: Mr. Scott.

7 THE COMMISSIONER: Scott?

8 MR. GIBBS: Mr. Scott said,

9 "I thought, sir, I should also announce the  
10 further program of the Inquiry, which subject  
11 to your ruling, has been approved by all  
12 counsel appearing. We anticipate that the  
13 evidence will be completed on Friday, October  
14 15th. Based on that completion date, Commis-  
15 sion counsel will make available to all  
16 participants and to the secretary of the  
17 Inquiry his proposed terms and recommendations  
18 which he will submit to you in argument. There  
19 will be available to all -- these will be  
20 available to all participants on Monday,  
21 October 18th. There will then be three weeks  
22 in which participants will have an opportunity  
23 to review Commission counsel's recommendations  
24 and to prepare their own. At the end of the  
25 third week, each participant who wishes to  
26 make oral submissions will file with each of  
27 the other participants a summary of the terms  
and conditions that he proposes to advance  
before you in oral argument. There will then  
be one week when all counsel and participants





Templeton, Doyle, Hernandez  
In Chief

1 will have an opportunity to review those  
2 summaries of terms and recommendations and  
3 oral submissions will begin in Yellowknife  
4 on November 15th. As I say, that method of  
5 proceeding has been agreed upon by all  
6 counsel and I'm grateful to them for their  
7 co-operation and assistance, and unless you  
8 have any objection, sir, that's the way we  
9 would propose to proceed."

10 You said, "That's fine," and  
11 then spoke about somebody leaving some rings on your  
12 desk. I'm not sure whether the "That's fine" meant  
13 that you were approving that method of procedure. I  
14 wanted to take the opportunity, sir, to speak to that  
15 because Mr. Scott was under a misunderstanding.

16 I talked to him on the  
17 telephone about it, in that Foothills had not agreed  
18 that what was announced was what should be done. It  
19 was not a unanimously endorsed proposal. We hadn't  
20 signified our agreement, sir, because of the fact  
21 that our view of the appropriate way to complete the  
22 Inquiry evidently differed from that of other counsel.

23 We agree, Mr. Commissioner,  
24 that the terms and recommendations advanced by  
25 Commission counsel should be provided to all parti-  
26 cipants as Mr. Scott suggested, by October 18th.

27 We agree also, sir, that  
28 oral presentations should commence on November 15th.  
29 We have no problem with either of those dates.

30 Where we dissent, Mr.



Templeton, Doyle, Hernandez  
In Chief

1 Commissioner, is on the intervening step of each  
2 participant circulating to each other participant  
3 a summary of what he proposes to say before you,  
4 before he has even said it.

5 Mr. Commissioner, if this  
6 proceeding were cast in the frame of a contest or  
7 an adversary proceeding, then the process of having  
8 an opportunity to reply to one's opponent would be  
9 basic and well-understood. But what you have been  
10 presiding over is not a contest, although that's not  
11 always been evident; it is in fact an Inquiry. As I  
12 understand those kinds of proceedings, sir, they are  
13 terminated not by argument but by a kind of summing  
14 up by each participant, and there is no right of  
15 reply because there is no adversity of interest in the  
16 sense that there is in a contested proceeding.

17 We believe, as I said, sir,  
18 that Commission counsel should provide all participants  
19 in advance with his suggested terms and conditions  
20 because his role is different than that of other  
21 counsel.

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Templeton, Doyle, Hernandez  
In Chief

1                                   He's a part of the Inquiry  
2 staff, sir. What he produces will have an appearance,  
3 at least an appearance of authority. He will be looked  
4 upon as speaking for the Commission and saying, in  
5 effect, this is what we're thinking of. Let's have  
6 your reaction and that seems to us to be sensible and  
7 in accord with reality. Foothills would respond as  
8 it thought appropriate when the time came in mid-  
9 November to make oral representations.

10                                   We request, however, sir, to  
11 be relieved of what I call the intervening step of  
12 participant's Council circulating summaries. There's  
13 several reasons why we seek this relief. Firstly, sir,  
14 is the practical one. When you consider the geography  
15 and the postal system, and in fact Ottawa post office  
16 workers are out this morning, for example, and not all  
17 people see that as a serious thing; it's extremely  
18 doubtful if summaries would reach their respective  
19 destinations in time. So, the preparation of those  
20 would be so much wasted time and we have had this  
21 occur in this Inquiry when material posted from Calgary  
22 has not reached, for example, even Toronto within  
23 five or six days.

24                                   Secondly, sir, also a  
25 practical reason, is that we and Arctic Gas have  
26 proceedings going on elsewhere, that is Washington and  
27 in Ottawa, and those proceedings require the attention  
28 of Council and technical staff. Those people,  
29 particularly the technical staff that you need for  
30 assistance and advice are not always available and





Templeton, Doyle, Hernandez  
In Chief

1 that's become evident in your Inquiry when special  
2 arrangements have had to be made because of witnesses  
3 being required to be elsewhere. And certainly, Mr.  
4 Commissioner, for the final process of digesting all  
5 of the enormous amount of material, we need the  
6 assistance of all the technical people we can get and  
7 we, in effect, have from October 18 to November 15 and  
8 believe we can do it in that time.

9 Thirdly sir, is the matter  
10 of time. It seems to us that that person who's most  
11 interested in the terms and recommendations of the  
12 parties is you, the Commissioner, and you're  
13 entitled, sir, to expect the best quality, the best  
14 reasoned and the most practical terms and recommendations  
15 that can be developed within the time available.

16 In my submission, it would be  
17 wrong to interject an unnecessary step that merely  
18 limits the time and it seems to me inevitably delutes  
19 the quality of the oral representations that are  
20 ultimately made to you.

21 Lastly, sir, the nature of the  
22 proceeding which I spoke to before. In my submission,  
23 what we are expected to do is a kind of summing up  
24 rather than argument. I fail to see, therefore, sir  
25 that it's of any value or interest to, for example,  
26 Messrs. Bayly or Bell or Steeves to know in summary  
27 form what I'm going to seek to persuade you to. I will  
28 make recommendations. They will make recommendations.  
29 You will weigh them all up and give them the weight  
30 which you think each deserves. In effect, we are not



Templeton, Doyle, Hernandez  
In Chief

1 replying to each other. We are advancing in each case  
2 the interest of our own particular client. So, in  
3 my submission, there is not any value even to be gained  
4 by circulating prior summaries.

5 It's for these reasons, sir,  
6 that I make the request that you delete that inter-  
7 vening step and leave it that Commission Council will  
8 produce his recommended terms and conditions on October  
9 18th and that then we appear before you on November  
10 15th and make our oral submissions. Thank you, sir.

11 MR. GOUDGE: Can I respond  
12 to that, sir. Other Council may wish to as well, but  
13 let me make three comments in reply. First, let me  
14 say it categorically, so it will be absolutely clear  
15 that the terms and conditions that our staff are  
16 preparing to present to you on November the 15th, are  
17 being prepared by our staff and by ourselves entirely  
18 apart from you. As you know sir, the parties perhaps  
19 deserve to be told that again clearly. They will be  
20 addressed to you afresh with you having not seen them  
21 before, except insofar as they are circulated to the  
22 parties on October the 18th. You said before that you  
23 intend not to be bound by them, and they are in every  
24 sense the product of Commission Council and his staff  
25 and that's all. That's the first point I wish to make.

26 The second point is that I  
27 appreciate what Mr. Gibbs says about the timeframe  
28 that he speaks of. Our staff are finding pressures  
29 of time every bit as much as his staff is. However,  
30 our staff, as I'm sure his staff has been, has been



Templeton, Doyle, Hernandez  
In Chief

1 working on our proposed terms and conditions for some  
2 time. We think we will be able to meet a timeframe  
3 that is substantially tighter than the one his staff  
4 will have to meet and I think frankly that the proposal  
5 that Mr. Scott made does present a realistic time-  
6 frame.

7 The last point that I wish  
8 to make is that I think it's perhaps not accurate to  
9 say that there are no adversities of interest. It's,  
10 I think, clear that a variety of views have been  
11 expressed by all participants on a variety of different  
12 issues. That's the reason there has been a good deal  
13 of evidence that is in conflict in this Inquiry.

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Templeton, Doyle, Hernandez  
In Chief

The consequence of that, I submit respectfully, is that when it comes to submitting to you, what each Council, what each participant thinks is the appropriate term or condition, there will necessarily, I am sure, if the evidence is any preview, be differences of opinion among counsel and among participants. Those very differences of opinion are differences of opinion that I think, each participant is entitled to comment upon. In order to comment suitably, it seems to me frankly, that it makes sense to have some prior chance to consider what the proposals are that are being offered by others. Unless there is that prior chance to consider, the responses which will inevitably be sought to be made, will be less than fully thought out, and I submit sir that in order for the responses to be as useful to you as they can be, it's absolutely essential that each participant have at least some time in order to consider the summary of proposals that others proposed to offer.

The week that Mr. Scott proposed in order to permit that prior consideration is, I think, sufficient time to accommodate that. Without the week, in my respectful submission, you would run the risk and the Inquiry would run the risk of getting less than fully considered comments upon terms and conditions proposed by others, that participants may disagree with, and it seems to me frankly sir, desirable that you get as fully considered comments as it's possible for the participants





Templeton, Doyle, Hernandez  
In Chief

1 to offer to you. So I would submit sir, that the  
2 program that Mr. Scott outlined is a reasonable one  
3 which accomplishes something that I think is in the  
4 best interest of the Inquiry.

5 THE COMMISSIONER: Does any-  
6 one else want to comment on Mr. Gibb's point?  
7 Mr. Steeves?

8 MR. STEEVES: I have nothing  
9 to say sir. My understanding was that everyone agreed  
10 with some reluctance to the arrangements stated by  
11 Mr. Scott. I have nothing to add to what anyone  
12 has said.

13 THE COMMISSIONER: Mr. Sigler?

14 MR. SIGLER: First of all,  
15 the Associations only been involved in the fourth  
16 phase and as such, either way is perfectly alright  
17 with us.

18 THE COMMISSIONER: Mr. Bayly,  
19 do you understand what Mr. Gibbs has said?

20 MR. BAYLY: I think so sir.  
21 Maybe Mr. Gibbs can correct me. I gather that he  
22 says that the Foothills was not part of any agreement  
23 to exchange argument or terms and conditions prior  
24 to giving that.

25 THE COMMISSIONER: Well for-  
26 get about whether they agreed to it or not. It  
27 clearly -- Mr. Gibbs has taken this position and  
28 argued it and I don't care what happened at the  
29 meeting. Lets discuss it on the merits.  
30



Templeton, Doyle, Hernandez  
In Chief

1  
2 MR. BAYLY: I think  
3 sir, that we'll need some time to look at the sub-  
4 missions being made by other parties so that we can  
5 comment upon them as a participant. I would say that  
6 if we were to try and do that during whatever period  
7 of time we are actually arguing, we will not do a  
8 very good job, so I would submit that it's either the  
9 proposal that Mr. Scott makes or one that involves  
10 an adjournment of some days, perhaps a week is an  
11 appropriate length of time, so that we can look at  
12 each others submissions. We may or may not have  
13 comments upon them, but I can see the situation sir,  
14 where my clients may well want to recommend something  
15 that the applicants will want to come back and say we  
16 can not build it under those conditions.

17 THE COMMISSIONER: Mr. Gibbs  
18 what do you say about Mr. Bayly's point, this concerns  
19 me? Suppose that Arctic Gas -- suppose I go along  
20 with you and I relieve the parties from any obliga-  
21 tion to circulate a memorandum outlining the points  
22 they want to make in final argument. Then suppose  
23 Arctic Gas comes in and makes a proposal that you  
24 take great exception to. You're saying that this  
25 being an Inquiry and not an adversary proceeding,  
26 you're not entitled then to seek an adjournment to  
27 respond to what they've said, because you're not  
28 interested in what they say. I'm interested in what  
29 they say and in what you say, but you're not interested  
30 in what each other says.



Templeton, Doyle, Hernandez  
In Chief

1                   You see, Mr. Bayly, who's  
2     able and tenacious and comprehensive, if I may say so,

3                   MR. GIBBS: A few other  
4     adjectives you might add?





Templeton, Doyle, Hernandez  
In Chief

1 THE COMMISSIONER: If you come  
2 in here on the 15<sup>th</sup> and you come up with a proposal  
3 that he hasn't had time to consider, he's going to  
4 ask me for an adjournment, and say, "I've got to think  
5 about this, I've got to consult Dr. Usher, I've got  
6 to consult Miss Allison and Mr. Raddi," and so on and  
7 so forth, "and I'll need two weeks," and then we just  
8 wind up sitting here, around here at Christmas listening  
9 to Mr. Bayly. That's the problem. You're simply  
10 saying, I take it, that this is an Inquiry and Mr.  
11 Bayly has no right to seek such an adjournment.

12 MR. GIBBS: There are some  
13 hundreds of volumes of evidence and whatever is said  
14 in a summing up or an argument, whatever terminology  
15 one gives it, must be based upon the evidence.  
16 Surely neither Mr. Bayly nor Mr. Steeves or anyone  
17 is going to advance a new proposal which is not  
18 founded on something in the evidence. Therefore I  
19 don't see what need or opportunity there would be for  
20 reply. I share Mr. Bayly's "perish-the-thought" and  
21 other peoples' apprehension of being here after we  
22 complete the oral argument. It would seem to me that  
23 what we are doing is taking that volume of material,  
24 digesting it, advancing our recommendations to you,  
25 and that's it. I may make one recommendation with  
26 which my friend disagrees, but after he replies the  
27 same situation may arise. I think you weigh them, you  
28 take the evidence, you say, "Well, Bayly says this,  
29 Gibbs says this, but really neither one of them are  
30 right because I heard Dr. Somebody back in May of last



Templeton, Doyle, Hernandez  
In Chief

1 year say thus and so."

2 I just don't see it as being  
3 a matching of condition against condition. Arctic  
4 Gas may put forward some proposal and I'm prepared to  
5 live with that, and they will expect that I will do  
6 the same; but/you will sift the whole lot of it.

7 THE COMMISSIONER: O.K., I  
8 understand. Well, sorry --

9 MR. STEEVES: It comes down  
10 to a question, as far as Arctic Gas is concerned can  
11 we have this period for consideration before the  
12 argument itself, or afterwards?

13 MR. GIBBS: Or ever.

14 MR. STEEVES: Isn't that  
15 what we're talking about?

16 THE COMMISSIONER: Yes.

17 MR. STEEVES: And I would  
18 just as soon have it before the argument itself rather  
19 than after, from the simple point of view of the  
20 economy of effort.

21 MR. BAYLY: Mr. Commissioner,  
22 there's one more point that Mr. Gibbs has made, and  
23 that is that all our submissions must be founded on  
24 the evidence. But we've had before in this Inquiry  
25 controversy as to what the evidence which is before  
26 you actually means, and I can envisage situations  
27 where I may say I think COPE is going to recommend  
28 such and such based on this piece of evidence, and  
29 Mr. Gibbs may well want to come back at a later time  
30 and, say, "But that isn't what the evidence says



Templeton, Doyle, Hernandez  
In Chief

1 and you can't make that recommendation on that basis."  
2 If he doesn't want that chance, that's fine; but I  
3 can see him having that problem with recommendations  
4 that other parties make, and we may all face that.

5 THE COMMISSIONER: I think  
6 that everybody except Foothills agreed to this, and  
7 I don't know what was in your minds. But Commission  
8 counsel is producing, I understand,<sup>a</sup> three or 400 page-  
9 document at the middle of the month. Now, I hadn't  
10 anticipated that on November 8th you would all weigh  
11 in with three or 400 pages in terms and conditions.  
12 I had thought that you might perhaps even in letter  
13 form set out the principal contentions you propose  
14 to make. Some of you might do that. Others might,  
15 where you have had your own staff, or where you your-  
16 self have been going through the evidence with a fine-  
17 tooth comb when you've got page references and so on  
18 and it's all written out, that you would file that.  
19 I'd be happy to read it. I'm not saying I want to sit  
20 here and listen to you read it to me, but I'd be happy  
21 to read it and happy to have you speak to it on  
22 November 15th.

23 But the thing that you  
24 circulate on November 8th I had thought -- and you  
25 can telex it, you can do a great many things to  
26 overcome the problems the mail present us with -- but  
27 I had thought it would be, depending on which organiza-  
28 tion you represent, depending on the number of staff  
29 you've got available, I understand that you just can't  
30 crank these things out when you get the urge although



Templeton, Doyle, Hernandez  
In Chief

1 you've all done pretty damn well for a year and a half  
2 now, but I had thought that it would depend, and I  
3 had thought it would be up to each one of you to decide  
4 what exactly you wanted to say on November 8th.

5 Now, let me just before I  
6 rule on Mr. Gibbs' motion, let me just make one thing  
7 clear to you all, because I don't want there to be  
8 any misunderstanding about this. In the normal course  
9 of events at the conclusion of the evidence<sup>of</sup> an Inquiry  
10 like this, the Commissioner would ask you all to sum  
11 up, as Mr. Gibbs has suggested, and then you would  
12 stand up presumably and sum up the case, as you saw  
13 it. Now, theoretically that means that if we finish  
14 the evidence next Friday we could stay on Saturday  
15 and you could all sum up on Saturday and we could  
16 all go home and I could write my report.

17 But you know that the practice  
18 in Commissions of Inquiry is for the Commissioner, with  
19 the assistance of Commission counsel and the staff,  
20 to prepare his report. That means that the Commissioner  
21 brings his own judgment to bear on all the vital  
22 questions. Let me put it this way. On all the  
23 questions, and most especially on all the vital  
24 questions. Now that's the practice, and any of you  
25 who have appeared before Royal Commissions, you know  
26 that that's the practice, and one day some of you  
27 will be sitting on Royal Commissions and you will  
28 realize that that's the way it's got to be done.

29 But in this instance to be  
30 fair to all of you, a year ago -- and you'll remember





Templeton, Doyle, Hernandez  
In Chief

1 my direction a year ago to Commission counsel -- I  
2 said, "So that you and the staff under Dr. Fyles'  
3 direction that assists Commission counsel and has  
4 assisted him for a year and a half, so that you, Mr.  
5 Scott, and your staff do not have the private ear  
6 of the Commissioner when the evidence is over, without  
7 the pipeline companies, the native organizations,  
8 the environmental groups, the municipalities, and  
9 the Chamber of Commerce ever knowing what advice  
10 you're giving me, I am directing you to disclose  
11 as soon as the evidence is all in, in detail the  
12 advice you propose to give me as the Commissioner  
13 of this Inquiry." That's why it is being done, so  
14 that you can all stand up and you can challenge it,  
15 or you can seek to modify it, or you can stand on it  
16 and say, "I agree."

17 Now, that was done so that  
18 there would be every opportunity given to every  
19 participant in this Inquiry to know what Mr. Scott  
20 and the lawyers who have been retained by the  
21 Inquiry were going to say to the Commissioner, and  
22 so that you would know what Dr. Fyles and the Inquiry  
23 appraisal team were going to say to the Commissioner,  
24 and so you could then deal with those questions.

25 Now, that's, I think, some-  
26 thing that I consider well worth doing and I've gone  
27 through it all so you'll understand why I did it,  
28 because I want to make it absolutely clear that they  
29 do not, Mr. Gibbs, speak with any authority. They do  
30 not, speak for me. When Mr. Scott distributes that



Templeton, Doyle, Hernandez  
In Chief

1 three or 400-page document, it will represent the  
2 work of Commission counsel and the Inquiry appraisal  
3 team and it will not in any way represent my own  
4 views, nor will it in any way be binding upon me, and  
5 I may say I don't know what proposals they're going  
6 to bring forward, and I don't want to know until  
7 they bring them forward, and then I want the rest  
8 of you to tell me what you think of those proposals  
9 and then I'll make up my mind.



Templeton, Doyle, Hernandez  
In Chief

Let me make that point again, that Mr. Scott does not speak for this Inquiry and neither does Mr. Goudge. At any rate, I hope I've made myself clear on that and this, I suppose, is a new departure in the way these inquiries are run but I thought you all deserved a crack at Commission Council and at the Inquiry appraisal team. Okay, well Mr. Gibbs, to turn to your motion, I'm afraid I'm against you and I will expect that on November 8th, by telex, by post, or by pony express all parties will let all other parties know as best they can the essential points they intend to make when they come here on the 15th to address the Inquiry to sum up the evidence and I leave it to the good judgment of each one of you to determine what is appropriate to say in the letter or the memoranda that you send out on November 8th.

We've gotten along well for nineteen months and we really have, and all of you have been splendid in the terms of co-operation you've offered the Inquiry and each other. I think if I leave it to the good judgment of each one of you to determine what should be contained in the material you distribute on November 8th, we'll get along well. I have no doubt somebody on November 15th will have some complaints but we'll treat them in the usual way.

Mr. Gibbs, you should go next door. You might have better luck.

MR. GIBBS: No, I have an unblemished record.





Templeton, Doyle, Hernandez  
In Chief

MR. GOUDGE: Perhaps, sir,  
we can return to Mr. Templeton.

MR. HOLLINGWORTH: Mr.  
Commissioner, before commencing with Mr. Templeton,  
I have one other small point I'd like to bring up.  
It's not a long or involved one. Tomorrow, as I  
understand from Mr. Goudge, the Beaufort Delta Project  
is scheduled to present evidence on presumably the  
proposed oil line. Well, it's a matter of public  
knowledge, sir, that there is no proposed oil line and,  
in fact, Beaufort Delta is folding its tent. That  
being the case, it seems to me, sir, that the calling  
of this evidence and it's a slim volume at best, is  
really a waste of everybody's time.

It's nothing more than shear  
speculation as to where an oil line might run and  
apart from that, the evidence contains some generalities  
which everyone here is well aware of, such as an oil  
line runs warm and a gas line runs cold and an oil  
line sometimes runs above the ground and if the gas  
line goes this way, we're going to go this way. Well,  
now they're not going anywhere and so if they're not,  
I fail to see why we should sit here and listen to it.

THE COMMISSIONER: How many  
pages is it?

MR. GOUDGE: It's eight or  
ten, I think sir.

MR. HOLLINGWORTH: Not very  
many. A dozen perhaps.

MR. GOUDGE: It's a short



Templeton, Doyle, Hernandez  
In Chief

1 submission. Let me respond to that again, sir. Some  
2 months ago we contacted the Beaufort Delta Group because  
3 they were, at that time, engaged in preparing preliminary  
4 work for an application for an oil line and they were  
5 good enough to respond in a very positive way to our  
6 invitation to come to the Inquiry and describe their  
7 work and describe the course on which they were embarked.

8 It now does appear that their  
9 course is leading them elsewhere than they first  
10 thought. Nonetheless they, in my submission, continued  
11 to be the reservoir of some knowledge concerning an  
12 oil line down the Mackenzie Valley, not I dare say  
13 their oil line, since they appear to be dissolving  
14 but in my submission, not only will the evidence not  
15 take too much time, but it is worth hearing no matter  
16 how short because they are at this moment in time the  
17 best available source of information on what an oil  
18 line down the Mackenzie Valley would mean.

19 Mr. Hollingworth is right in  
20 this sense that a good deal of it is now speculation  
21 in the sense that it cannot be related to an application  
22 that is contemplated by any particular company, but  
23 it does speak to the general concept, I submit, of an  
24 oil line down the valley. So, I submit for that reason  
25 it's of use to the Inquiry. I would have thought  
26 frankly it's an addition of use to both applicants who  
27 are under the pipeline guidelines charged with certain  
28 responsibilities concerning evidence relating to an  
29 oil line as well as a gas line down the valley and I  
30 think for that reason as well, it's evidence that would



Templeton, Doyle, Hernandez  
In Chief

1 be useful to the purposes of the Inquiry. So, I say  
2 for those reasons it's evident that Beaufort Delta  
3 continues to be good enough to offer to the Inquiry  
4 and that you should hear them.

5 THE COMMISSIONER: Has anyone  
6 else got any views on that?

7 MR. STEEVES: When I saw the  
8 evidence was lodged with the Inquiry Council on March  
9 the 12th and then distributed yesterday, I thought  
10 there must be real dynamite in it and I opened it with  
11 some trepidation.

12 I found that in fact there's  
13 nothing to it.

14 MR. HOLLINGWORTH: My only  
15 response to Mr. Goudge, sir, is this; some time ago  
16 Mr. Veale brought a motion before you to hold community  
17 hearings in the area of the then mooted pipeline,  
18 following the Alaska Highway route. That has now  
19 become a reality but at the time it was not applied  
20 for. You turned down Mr. Veale's motion on the basis  
21 that it was only speculation, that it was a proposal,  
22 it was on the back of the proverbial envelope and as  
23 such, should not be considered by you. I think we've  
24 got a matter of more speculation with the Beaufort  
25 Delta project, particularly in view of last weekend's  
26 announcement and with all due respect to Mr. Goudge,  
27 I'll decide what use such evidence is to my clients  
28 and my decision has already been made on that.

29 It's of no use whatever, sir,  
30 and I think that it's just taking up a lot of everybody's





Templeton, Doyle, Hernandez  
In Chief

1 good time.

2 MR. BAYLY: Mr. Commissioner,  
3 on another part of the subject, one of the things that  
4 you are to consider, sir, is the possibility of an  
5 oil line in a corridor which is occupied by a gasline.  
6 Now, we've heard evidence from Arctic Gas and Foothills'  
7 consultants on oil lines close to gas lines. If we  
8 have people who have been citing this even in a  
9 preliminary way from the point of view of a possible  
10 or past proponent of an oil line in the same corridor,  
11 I would like to hear what they have to say and ask  
12 them some questions.

13 THE COMMISSIONER: Well, the  
14 pipeline guidelines, as I've drawn to your attention  
15 many times, say that we are to proceed on the assumption  
16 that if a gasline is built, an oil line will follow and  
17 the oil pipeline so far as immediate plans are concerned,  
18 seems to be on again, off again. We had Mackenzie  
19 Valley research in the early '70's. Beaufort Delta  
20 was put together last year and now they've come apart  
21 again.

22 I have no doubt that if next  
23 year or the year after that DOME discovers a pool of  
24 oil in the Beaufort Sea, the oil pipeline will be on  
25 again and it would be remiss if this Inquiry did not,  
26 as it is required to do under the guidelines, deal with  
27 the impact, not only of a gas pipeline but an oil  
28 pipeline as well, so far as we're in a position to do  
29 so.

30 We don't have anybody coming





Templeton, Doyle, Hernandez  
In Chief

1 before us who says we want to build an oil pipeline.  
2 We can't scrutinize it to the same extent as we  
3 scrutinize the gas pipeline proposals, but that's our  
4 mandate, that's our obligation under the guidelines.

5 As far as this particular  
6 evidence is concerned, I have determined that the  
7 subject matter is relevant and I'm afraid we have to  
8 leave it to Commission Council to decide whether the  
9 evidence bears sufficient weight to justify calling  
10 it and I can't tell each one of you whether the evidence  
11 that you have prepared is so tenuous in terms of its  
12 weight that you should just forget about it. I'm  
13 afraid that would be infringing on your mandate as  
14 Council.

15 I hope, Mr. Goudge, you'll  
16 glance through this. If you, on reflection, decide  
17 it is a waste of time, you'll tell these gentlemen not  
18 to spend their last day in the firm's employ on the  
19 plane to Yellowknife.

20 MR. GOUDGE: Well, I should  
21 say that they indicated last week that they would like  
22 to come. They have from the beginning thought that--  
23 to be as helpful as they could. They obviously no  
24 longer have any kind of application that they could  
25 speak to but they do have the general knowledge that  
26 they've accumulated during their time with the company  
27 and I think frankly it would be useful to us all.  
28  
29  
30



Templeton, Doyle, Hernandez  
In Chief

1 THE COMMISSIONER: O.K., well,  
2 we'll leave that up to you. If they're here tomorrow  
3 we'll welcome them.

4 Well, that was a good session  
5 of argument, Mr. Templeton.

6 MR. TEMPLETON: Well, while  
7 you're on the subject of announcements maybe I should  
8 have made one myself that I should have done before I  
9 started this morning. Last time I was here giving  
10 evidence was on -- I was chairman of the Environment  
11 Protection Board, and if you remember, the Board  
12 folded up on the last day of the testimony, which was  
13 January 14th, I think.

14 Since then whatever work has  
15 been done has been done by -- on behalf of me person-  
16 ally and so that the evidence that we have given  
17 today was not vetted by the other members of the Board.  
18 So I think I should have said that this is my evidence  
19 and that of Mr. Doyle and Mr. Hernandez, who I support,  
20 and agree with their testimony but it's not the Environ-  
21 ment Protection Board information. I don't know whether  
22 they would agree or not.

23 THE COMMISSIONER: Fine.  
24 Maybe you'd draw the microphone closer to you, Mr.  
25 Templeton, and we'll be able to hear a little better.

26 WITNESS TEMPLETON: The Environ-  
27 ment Protection Board recommended to you, Mr. Commissioner,  
28 that one of your terms and conditions be that a land  
29 use plan for the Western Arctic be prepared regardless  
30 of whether or not a pipeline was to be built. The



Templeton, Doyle, Hernandez  
In Chief

1 Board also recommended that native claims be settled  
2 before pipeline routing and construction was approved.  
3 These two recommendations are, of course, inter-related  
4 because undoubtedly the settlement of the native land  
5 claims will, of necessity, reflect policy decisions  
6 respecting existing and probable future land use.

7 I still agree with both of  
8 these recommendations even though they were made some  
9 2½ years ago. However, there is no indication  
10 that the Government of Canada has changed its mind  
11 from the policy expressed on January 18, 1974 when  
12 Mr. Jean Chretien, then Minister of Indian & Northern  
13 Affairs, stated at the opening of the Northwest  
14 Territories Council:

15 "This government, after weighing all of the  
16 factors involved very carefully, has come to  
17 the conclusion that a gas pipeline down the  
18 Mackenzie Valley is in the national interest."

19 Also, it would seem that the demand for a pipeline  
20 is even greater today than it was at that time, and  
21 government policy seems to be to proceed with the  
22 building of a pipeline regardless of whether or not  
23 native land claims have been resolved at the time  
24 the decisions respecting the pipeline are made.  
25 Further, I doubt if native peoples will be ready to  
26 finalize their claims by the time the government is  
27 ready to consider the pipeline. I think that we must  
28 realistically assume that the pipeline could well  
29 be approved by the Government of Canada between one  
30 to two years' time.





Templeton, Doyle , Hernandez  
In Chief

1 Throughout the hearings the  
2 native peoples have clearly indicated their disappoint-  
3 ment in the Government of Canada for not recognizing  
4 them, their rights, their traditions, and their  
5 culture. They are understandably using the pipeline  
6 issue to gain this recognition. The government, on  
7 the other hand, can say that the native peoples have  
8 not made their claims in terms that the Government of  
9 Canada can understand or accept.

10 It is perhaps worth  
11 recalling Mr. Eric Gourdeau's evidence wherein he  
12 stated that the success or failure of the social  
13 aspects of the project would be measured by the  
14 native peoples' perception of the project. If native  
15 land claims were not settled, he said their perception  
16 of the project would be a negative one. But he also  
17 said that a land claims settlement in itself would  
18 not be a cure-all for all the problems native people  
19 feel confront them, nor would it mean an end to the  
20 demands of Southern Canadians for access to northern  
21 resources. Therefore, although most people have  
22 placed a top priority upon settlement of native  
23 land claims, once they are settled many long-standing  
24 problems will still remain. The Quebec Hydro-Cree  
25 settlement, for example, solved only some problems.  
26 And as Mr. Gourdeau has testified, the Cree peoples'  
27 perception of the Bay James project is negative.

24 The natives' perception of  
25 you, sir, is positive, I am sure. At long last  
26 someone seems to be listening with a sympathetic ear.



Templeton, Doyle, Hernandez  
In Chief

1 I think the perception of the rest of Canada towards  
2 you is also positive. The big problem now is that  
3 some of us have made a native land claims settlement  
4 the foundation beam on which the social platform  
5 rests. If this settlement is not forthcoming, the  
6 native peoples will understandably/<sup>be</sup>disappointed and  
7 skeptical. Failure to resolve this issue will also  
8 increase the growing cynicism of Southern Canadians  
9 respecting government's responsiveness to the people.  
10 I fear that much of the valuable pioneering work that  
11 you have done would, under these circumstances, be  
12 undone.

13 Unquestionably, we who are  
14 interested in the terms and conditions which should  
15 govern construction of the pipeline find ourselves  
16 in somewhat of a dilemma. Do we say there has to be  
17 a detailed land use plan and final land claims  
18 settlement before the pipeline is approved, and  
19 thereby run the risk of having it approved with no  
20 settlement of these two issues?

21 Your report, Mr. Commissioner,  
22 will take Canada to an intersection of a number of  
23 roads at the top of the hill we can't see over.  
24 The road we would like to take is obstructed and the  
25 question is: Should we sit and wait till the  
26 obstruction is removed and thereby run the risk of  
27 slipping backwards, or should we take a detour and  
28 try to get around the obstruction? The detour has  
29 its mud holes and we may get stuck, but with the  
30 momentum you have provided, I think Canada should go



Templeton, Doyle, Hernandez  
In Chief

1 as far as it can towards ensuring that satisfactory  
2 options for land claims settlement will be maintained  
3 through a preliminary land use plan recognizing the  
4 native rights. At the same time, the Government of  
5 Canada must make a definite time commitment to com-  
6 plete land use plans and settle land claims. To me,  
7 it would be completely unacceptable to build a pipeline  
8 without such commitments.

9 If native people are assured  
10 that their rights to some land are recognized and  
11 their rights to this land plus future land assigned to  
12 them cannot be casually usurped, they may react more  
13 positively not only to the project but to government  
14 as well.

15 Before I go on to discuss the  
16 staging of the government and the project operations,  
17 I would like to spend a few moments on my concept of  
18 a land use plan. I have written a fairly lengthy  
19 argument on the need for a land use plan, and some  
20 criticism of why there is not one already. But I know  
21 you are pressed for time, so I will leave that out and  
22 get down to discussing my concept of a land use plan  
23 and recommending to you some terms and conditions that  
24 I think are practical within the time frame of this  
25 project. I do this in the hope that they might be  
26 considered practical by you and possibly the government  
27 might actually put them into effect.

28 The land use plan, as I envision  
29 it, specifies immediate and long-term allocation of  
30 resources sensitive to the goals and aspirations of



Templeton, Doyle, Hernandez  
In Chief

1 the disparate segments of Canadian society. I think  
2 we have made it abundantly clear, however, that the  
3 needs and aspirations of one particular segment of our  
4 society -- namely, the native peoples of the Western  
5 Arctic -- should receive paramount consideration in  
6 this planning process. In my view, these hearings have  
7 placed you in a unique position to articulate,  
8 probably better than any other single person, the goals  
9 and aspirations of the disparate segments of our  
10 society as they relate to the Western Arctic in  
11 general, and to the pipeline project in particular.  
12 And I further feel that you have developed considerable  
13 sensitivity to the goals and aspirations of the native  
14 peoples who feel most immediately and directly threat-  
15 ened by a development of the scale envisioned here.

16 I therefore look to you,  
17 Mr. Commissioner, to provide government with insight  
18 into the goals and aspirations of the disparate groups  
19 interested in and affected by the development in the  
20 Western Arctic. As I stated, I feel you are in a  
21 unique position to provide this insight and articulate  
22 a framework of social goals and aspirations within  
23 which a land use plan can be formulated.

24  
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Templeton, Doyle, Hernandez  
In Chief

Land claims, a settlement of which we have endorsed from the outset and continued to endorse, endorse aside and convince some of the concerns expressed by the native people is routed in fears born of uncertainty respecting the future course of events. After this development, what next? Where and when? A well conceived land use plan incorporating clearly defined zones and allocations, indicating potential development phasing and incorporating administrative safeguards to ensure referral to people before reallocation is permitted could go a long way in allaying these fears. For the first time, some insight into future development would be available.

I would like to recommend to you, Mr. Commissioner, that you force the decision to establish a Land Use Plan by recommending to the Government of Canada that if it gives permission to build a gas pipeline, that it give it in two stages. The first stage, being Approval in Principle of one application and one route, with the terms and conditions which you and the National Energy Board will be recommending and also the initial components of a land use plan which recognizes the rights of the native people.

The second stage, and no sooner than 18 months later, should give Project Approval. During the 18 months, the regulatory body or Agency and by the Agency there, I mean the Agency that Mr. Doyle talked about this morning and was recommended by the Environment Protection Board, for



Templeton, Doyle, Hernandez  
In Chief

1 the project would be in operation, the final project  
2 designs would be ready for approval, a land claim  
3 settlement reached and a land use plan installed  
4 and a land use zoning authority in operation. In  
5 short, enough preparatory work would have been done  
6 to justify actual project approval.

7 Now I would like to discuss  
8 briefly what these two stages would involve:

9 Stage 1 or Approval in  
10 Principle.

11 In giving its Approval in  
12 Principle, the Government should formalize the follow-  
13 ing:

14 First, Incorporation of  
15 communities. By so doing, no one could usurp the  
16 land in a community without meeting the requirements  
17 of the community.

18 b) Zoning of hunting and trapping areas shown on the  
19 1976 Land Use Series as Traditional Use Zones where  
20 other uses could not be made of the land without  
21 notice to the parties interested in that land,  
22 public hearings, a judgment, and compensation  
23 and/or reassignment of other lands.

24 c) Establishment of a Land Use Zoning Authority on  
25 which local residents had representation and which  
26 would hold hearings in communities affected by  
27 any proposed zoning changes. This committee would  
28 be funded by the Government of Canada and have a  
29 full-time secretariat composed of people living  
30 in the north.



Templeton, Doyle, Hernandez  
In Chief

- d) Establishment of a Mackenzie Valley transportation corridor along the accepted pipeline route from the Alberta border to the northern terminus at the Mackenzie Delta. This corridor would be 5 miles wide except in the Traditional Use Zones when it would be narrowed to 2 miles wide. The corridor should not come within half a mile of the Mackenzie River, nor should the corridor extend within the community limits. Although the corridor would be initially approved and the gas pipeline in it would be approved as to the route and approval in principle of the line, the ancillary features such as access roads, wharves, and borrow pits would require approval by the land use zoning authority to ensure that the resources of the corridor are not exhausted by the first user of the corridor. Since the corridor would cross the Traditional Use Zones, compensations and/or additional lands would have to be provided present users of these lands.
- e) Establishment of a special category designed the Mackenzie Delta Zone, created because of the uniqueness and importance and present development demands on the area. The location of this zone would be the area west of the Tuktoyaktuk Road and north of the Dempster Highway. The westerly boundary would be two miles west of the Mackenzie Delta as outlined on the 1976 Land Use Information Series.
- f) Classification of the balance of the Mackenzie





Templeton, Doyle, Hernandez  
In Chief

1 Valley and the northern Yukon as a land freeze  
2 zone until the land use plan was installed and  
3 the Land Use Zoning Authority which includes  
4 local residents was operating and able to deal  
5 with future land use change proposals.

6 That was all the first stage,  
7 that's the approval in principle stage. That's what  
8 I would like to see the Government do at the stage  
9 that it gives approval in principle of one application  
10 for one route.

11 Stage 2 is Project Approval.

12 As I mentioned earlier,  
13 Project Approval would be no sooner than 18 months  
14 after Approval in Principle because by that time the  
15 pipeline company could have advanced its planning and  
16 designs to the point that it could ask for approval  
17 with a good degree of certainty as to construction  
18 details, schedule and equipment to be used.

19 During the same period, the  
20 government agency could be organized and staffed and  
21 ready to consider the detailed designs of the pipe-  
22 line company as Mr. Doyle pointed out this morning.

23 Also during this time, the  
24 government and the native groups could be working on  
25 a land claims settlement and have a definite target  
26 date for completing negotiations.

27 Concurrently the Land Use  
28 Zoning Authority could be legally constituted and  
29 the members could prepare themselves for the work  
30 ahead in considering applications for zoning changes.



Templeton, Doyle, Hernandez  
In Chief

1 They too would have a definite date to be ready to  
2 start operating because immediately after the land  
3 claims are settled, there will undoubtedly be an  
4 immediate demand from government, industry and in-  
5 dividuals to alter zoning designation on land not  
6 covered by the land claims settlement.

7 Another major recommendation  
8 is that a Land Use Zoning Authority be jointly created  
9 by the Government of Canada and the Territorial  
10 Governments. There are examples of such authorities  
11 in every Province and city in Canada so I will not  
12 dwell on the details of the terms of reference of  
13 such a committee. There are, however, two points  
14 that need to be stressed. First, the authority members  
15 must reside in the north and native peoples must be  
16 members of the authority. Second, the authority must  
17 give the residents of the northern communities the  
18 opportunity to express themselves in their own way  
19 on familiar grounds within their own community.

20 Now I would like to elaborate  
21 on the Mackenzie Delta Land Use Zone that I recommended  
22 a few minutes ago.

23 Up until now, by my choice,  
24 I have excluded the Mackenzie Delta Crossing from  
25 my comments. Recently, though, in considering how  
26 a land use plan should be prepared, I could scarcely  
27 exclude it. The Mackenzie Delta is a most environ-  
28 mentally and socially sensitive and significant  
29 phenomenon not only to existing residents and future  
30 residents, but to all of Canada and perhaps the world.



Templeton, Doyle, Hernandez  
In Chief

1 It is traditionally used by 5 communities. It is  
2 unique in that it is the only major delta feeding  
3 the Arctic Ocean in North America and is a biological  
4 factory for the insertion of heat, nutrients, and or-  
5 ganisms into the food chains of the Arctic Ocean.  
6 It is also under development pressures from the oil  
7 industry and governmental organizations.

8 In considering a land use  
9 plan for such an area, one must consider very care-  
10 fully the long term needs of the people who have  
11 moral and legal rights to some, if not all, of the  
12 land.



Templeton, Doyle, Hernandez  
In Chief

One must consider the long-term biological consequences of the land uses proposed.

One must consider the demands of future generations of both northern and southern Canadians.

One must consider the demands of southern Canadians because they too contribute to the well-being of the North and northerners.

One must consider the economics of the projects proposed.

One must consider the irreversible actions that have already been made and the apparently inevitable actions that are yet to come.

One must consider the stated policies of the Government of Canada and those that appear to be adopted but are not yet defined.

One must consider the state of knowledge to predict the changes that will be wrought by a proposed action to the social, economic, and biological environments.

In addition to participating in the work of the Environment Protection Board, I have read the transcripts of your hearings in Inuvik, Mr. Commissioner, where the Mackenzie Delta was discussed. I attended a CARC Conference on the Beaufort Sea in Ottawa in November, 1975 where such knowledgeable people as Dr. Ian McTaggart-Cowan, Dr. Don Gill and Dr. Everett Peterson presented papers.

I presented a paper on the Physical Invasion of the Mackenzie Delta by projects





Templeton, Doyle, Hernandez  
In Chief

1 now proposed, along with the accompanying ancillary  
2 activities and other projects. Although the scenario  
3 that I painted has been criticized as to some of the  
4 projections and the conclusions, I have not received  
5 criticism as to the extent of the activities proposed.  
6 The list of construction activities is like--that is  
7 likely is large and some of the projects are gigantic.  
8 For example, one gas plant is estimated to cost one  
9 thousand million dollars.

10 Of course, most of the money  
11 will be spent in the South, but just installing the  
12 equipment by men and machinery will have a major  
13 impact. That is only one project. Roads, villages,  
14 wharves, borrow pits and the like will all follow.  
15 Then there may be gathering lines, oil lines, et  
16 cetera, et cetera, et cetera. The list is long, the  
17 dollar cost tremendous and when you spend large sums  
18 of money with men and machines, you will alter the  
19 natural and social environments. Appended is a copy  
20 of the talk I gave if more elaboration is needed as  
21 to what I thought.

22 So, I would like to make the  
23 following recommendation for your terms and conditions,  
24 Mr. Commissioner. I recommend that each development  
25 type activity proposed for the Mackenzie Delta, whether  
26 pipeline, ancilliary project, gas plant, gathering  
27 system or oil well or town, be restricted until it is  
28 established that there are no reasonable alternatives  
29 to it.

30 Even if the lesser alternative



Templeton, Doyle, Hernandez  
In Chief

1 is chosen, it should be subject to an intense scrutiny  
2 as to the risk of damage it poses both to the social  
3 and natural environments. The judgment on each project  
4 should be made with the following criteria in mind:  
5 That the disruption it causes would be permitted if  
6 the social or natural environment can recover in the  
7 short term in most cases and in the long term in all  
8 cases. That, in my opinion, is the way to define whether  
9 a project is acceptable or not.

10 That the Mackenzie Delta  
11 Land Use Zone be considered a land freeze zone until  
12 the Zoning Authority is established. This would mean  
13 that before any development activity could take place,  
14 the Zoning Authority would have to hold hearings before  
15 zoning changes could be made to the Mackenzie Delta  
16 zone. Such changes would define the boundaries of the  
17 change and provide documentation for the reasons for  
18 the zoning change and the alternatives considered.  
19 Such documentation would be signed by the authorities  
20 making the judgment and be publically accessible  
21 documents.

22 Having considered the projects  
23 in the Mackenzie Delta coming before this Inquiry, I  
24 make the following recommendations:

- 25 1. that the Cross Delta Route proposed by Canadian  
26 Arctic Gas not be approved, and;
- 27 2. that the Foothills proposed line within the Delta  
28 must be constructed from snow or ice roads rather  
29 than gravel.

30 As I see it, the favorable



Templeton, Doyle, Hernandez  
In Chief

aspects of the Cross Delta Route are:

- a) its shorter length. But, of course, one should not consider only the length but also the quality of the area crossed.
- b) its lesser costs.
- c) the risk of construction oil spills in the outer delta rather than the risk of construction oil spill upstream of the entire delta.
- d) some maintenance jobs close to home for delta residents.

The unfavorable aspects are:

- a) the unknowns - interference and disruption of the biological activity of the delta, the inter-relationships of food chains and limiting factors all of which are unknown. The effects of frost heave of a chilled pipeline on the unfrozen sediments of the delta.
- b) the knowns - the effects of construction and maintenance repair activities on waterfowl and beluga whales.
- c) most of the consultants that appeared before you said that the Cross Delta Route was acceptable with certain controls but did not put forth that it is environmentally preferable.
- d) severe social problems due to the intense activities associated with oil drilling and gathering systems, gas plants and ancilliary activities by many construction related organizations which are not used to considering that solving social problems of natives is one of their goals.





Templeton, Doyle, Hernandez  
In Chief

This latter point is common to both CAGSL and the Foothills proposals. In other words, we're talking there about--there's a momentum gaining for many construction organizations and operations in addition to those of the pipeline but if we're going to preserve the delta, you'd have to think about reducing all activities that aren't absolutely necessary.

I have been involved in the construction industry all my working life and I can assure you that although many of the problems of the Alyeska line may be unique to that project, the magnitude of the problem is not unique for that size of job. Things do go wrong and I would not like to see them go wrong in the Mackenzie Delta.

In my opinion, the chief reason for using the Cross Delta Route is one of saving money and that is a very important one. I recognize that the demand for money to provide for our energy needs is far beyond Canada's ability to produce it. I believe that the shortage of money will, in the future, reduce Canada's standard of living but even so, I cannot accept the risks, some of which are known, some of which are unknown, of unnecessary development in the delta. The Cross Delta Route is, in my opinion, unnecessary. There is an alternative and so I recommend that the Cross Delta Route not be approved.

I believe that Foothills can build a gas pipeline from a snow or ice road and therefore, I recommend that in this unique and critical



Templeton, Doyle, Hernandez  
In Chief

1 Mackenzie Delta Zone, an all-weather road is unnecessary  
2 and should not be approved.

3 I would further recommend  
4 that each gas plant, gas gathering line, and oil or  
5 gas well proposed for the Mackenzie Delta Zone be  
6 reviewed by the Land Use Planning Authority to see  
7 if there are alternatives which would disturb the  
8 delta less. There will be some proposals, of course,  
9 that should not be approved, regardless of their  
10 lesser disruption.

11 I have a few further  
12 recommendations to make in the matter of Land Use  
13 Zoning.

14 When I was before you on  
15 January 12 and 13, 1976, I mentioned that although I  
16 preferred the interior route, one factor made me accept  
17 the coastal route. That factor was that I understood  
18 that the sedimentary basin extended west of the delta  
19 and, therefore, it was likely that a gathering line  
20 would bring future gas to the shore of the delta.  
21 Thus, since there would be a pipeline west of the delta  
22 anyway, the mainline might as well be there and thus  
23 cut down the length of the gathering line. This is  
24 on page 16288 of the transcript.

25  
26  
27  
28  
29  
30



Templeton, Doyle, Hernandez  
In Chief

1 When I was working on my  
2 talk on the physical invasion of the Mackenzie Delta,  
3 I had a petroleum geologist who was familiar with  
4 the delta review with me the areas most likely to  
5 have oil or gas, and make a guess at where the  
6 gathering lines would be located. Although I  
7 showed on the map accompanying the talk a gathering  
8 line going to the shore west of the delta, it did not  
9 seem to either of us that it would necessarily go  
10 west of the delta.

11 About a month later after  
12 preparing the talk, your hearings were held in Inuvik  
13 and I was surprised to see that the argument that a  
14 gathering line would probably have to come -- I was  
15 surprised to see that the argument that a gathering  
16 line would probably have to come to shore west of  
17 the delta was not advanced as the chief reason for  
18 adopting the coastal route. Messrs. Hemstock and  
19 Williams in Volume 53 of the transcript discussed  
20 the extent of the Tertiary Basin and said that the  
21 gas would have to come to shore, and I assume they  
22 wanted to leave their options open to go to shore  
23 in the shortest possible distance when; and if,  
24 gas is discovered.

25 Dr. McTaggart-Cowan said in  
26 Volume 107, page 16298, that he was willing to gamble  
27 that there would not be a continuous line needed all  
28 along the coast, because he was concerned about the  
29 projects that would follow a continuous line along  
30 the coast.



Templeton, Doyle, Hernandez  
In Chief

1 He felt that if it was intermittent there would be  
2 less pressure to put another line or a road or some  
3 other facility along it.

4 I agree with Dr. McTaggart-  
5 Cowan, there does not seem to be a compelling reason  
6 for adopting the coastal route, and I therefore have  
7 no hesitation in recommending that the interior route  
8 alternative be used if the CAGPL application is  
9 accepted.

10 I further recommend that if  
11 the CAGPL interior route is adopted, that the pipeline  
12 follow the Dempster Highway through the Richardson  
13 Mountains.

14 My final recommendation regard-  
15 ing the Mackenzie Delta land use zone is that no fuel  
16 depots be allowed in the Mackenzie Delta zone alongside  
17 flowing streams or rivers, and that wharves containing  
18 bulk fuel unloading facilities be located in such a  
19 way that oil containment booms can be installed down-  
20 stream of all unloading facilities so as to completely  
21 contain oil spills with one hour's notice.

22 This recommendation should  
23 apply to whichever application is approved.

24 Thank you, Mr. Commissioner.

25 THE COMMISSIONER: Thank you,  
26 Mr. Templeton.

27 MR. GOUDGE: I think that  
28 concludes the evidence of this panel, sir. Perhaps  
29 prior to cross-examination we might break for coffee.

30 THE COMMISSIONER: Right, we'll





Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 do that.

2 (PROCEEDINGS ADJOURNED FOR A FEW MINUTES)

3 (PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

4 THE COMMISSIONER: O.K., are  
5 we all set, Mr. Goudge?

6 MR. GOUDGE: Yes sir, we're  
7 prepared to resume. Cross-examination will be led  
8 off by Mr. Bayly.

9  
10 CROSS-EXAMINATION BY MR. BAYLY:

11 Q Mr. Templeton, I'll  
12 address the questions to you in general, but feel free  
13 to refer them to either Mr. Doyle or Mr. Hernandez.  
14 I'd like to start with the land use plan that you've  
15 presented and ask you some questions about its  
16 implementation and ask you if you have any thoughts  
17 about this.

18 To begin with, can you tell  
19 me, have you thought who would present the initial  
20 draft plan, that is the land use plan?

21 WITNESS TEMPLETON: I think  
22 the initial land use plan should be done by the Govern-  
23 ment of Canada because they are the present owners of  
24 the land, and I recognize that there are some caveats  
25 on that, people that say they have some rights, but  
26 I think the Government of Canada has that responsi-  
27 bility.

28 Q Now, you've talked about  
29 the unique position of this Commission and by its  
30 position that it's able to ensure that the land use



Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 plan would reflect the things which have been said  
2 regarding the proper and preferred land use. Now,  
3 can you give us some advice on how the Commission  
4 would do this with the exception, perhaps, of what  
5 you've already suggested on the site-specifics of  
6 the individual routes themselves? Because I take it  
7 that the land use plan would involve far more than  
8 either the pipeline right-of-way or the corridor  
9 you talked about.

10 A Yes, of course. Well,  
11 I don't think that the Commission can go or should  
12 go into setting up a land use zoning authority because  
13 this involves policy decisions by government, and  
14 certainly the local people. So I think probably  
15 the way, as far as the Commission should go, would  
16 be to recommend those things that it feels are neces-  
17 sary to a land use plan based on the Commissioner's  
18 experience, having listened to these hearings for  
19 this long time.

20 Q You're aware, though,  
21 Mr. Templeton, that this Commission has heard a number  
22 of -- a large number of site-specific items that don't  
23 relate directly either to the corridor or to the  
24 possible right-of-way. How should those be dealt with  
25 and passed on; do you have any idea, to the land use  
26 planners?

27 A Yes. I suppose you're  
28 speaking now of things like the islands in the middle  
29 of the Mackenzie that are used as staging areas for  
30 geese, and also the very extensive operations that



Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 are proposed for the Mackenzie Delta. I think that  
2 probably -- I don't know how far the Commissioner  
3 could go. I went as far as I personally thought I  
4 could go by saying that there should be a land freeze  
5 except for the actual corridor, and the right-of-way  
6 within that corridor in the Mackenzie Valley, and  
7 that, and that they would set up a zoning authority  
8 which could consider the other things because when  
9 you're talking about zoning you've got to consult the  
10 people that are affected, and I don't think the  
11 Commissioner has that time any longer to go to them  
12 and say, "Well now, I would like to do this and what  
13 do you think about it?"

14 Q So you're suggesting  
15 that whoever was doing this should go back to the  
16 communities either with a draft plan or to collect  
17 information for a draft plan.

18 A Well, I think the  
19 Government of Canada should come up with a plan and  
20 then the zoning authority would administer it and  
21 decide those things that it could do once the plan  
22 was formulated. But the Government of Canada has  
23 been studying land use planning in the Mackenzie  
24 Delta, I would gather, for years, because I've seen  
25 this group mentioned in the government telephone book  
26 for years, and I assume that a great deal has been  
27 done and I think it's now time to say to them, "All  
28 right, produce it."

29 Q Maybe the thing to do  
30 would be to submit those telephone numbers as an





Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 exhibit to the Inquiry.

2 A Oh, incidentally, it  
3 isn't in the phone book this year.

4 Q We may have missed our  
5 chance. How would you propose that local northern  
6 people, whether they're native or white people,  
7 be able to control or influence the initial plan?

8 A Well, I think the  
9 Government of Canada in preparing the initial plan  
10 would have to take them into account. The plan, I  
11 think I listed quite a number of things -- I'm not  
12 sure of the page now, but I listed quite a number of  
13 things that you had to consider when you were taking  
14 -- when you were preparing a plan, and the native  
15 people, well all the residents, must of necessity  
16 be taken into account in that, as well as things like  
17 government policy and things like that, and also the  
18 existing land uses that must be respected.

19 Q All right. You're  
20 aware, though, that people in the Mackenzie region  
21 and the Mackenzie Delta and the islands that surround  
22 it have been trying to influence land and water use  
23 plans for a number of years, and I'll give you some  
24 examples here and ask you to comment on whether  
25 these are the land uses that there's been some  
26 controversy over between people. One is the Banks  
27 Island seismic work in the early '70s; the Cape  
28 Bathurst land freeze; the Husky Lakes question,  
29 what should be done with them; the permanent road  
30 issue between Tuk and Inuvik; and the fight over the



Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 Dome Petroleum drill sites in the sheer zone. Would  
2 you agree with me that these are issues where northern  
3 people have tried to influence land use planning,  
4 whether we call it a master plan or whether we call it  
5 isolated planning for various areas of this region?

6 A I think all of those  
7 things you listed, as far as I know them, would be  
8 items which would be discussed under land use planning,  
9 except for perhaps the Dome Petroleum offshore  
10 drilling. I'm not sure that that would normally be  
11 in a land use zoning map, for example.

12 Q Now, these are areas  
13 where planning has been done by the Federal Government,  
14 where local people have either supported or opposed  
15 the planning, or there has been a division among  
16 local peoples. One of the things I'd like to know is  
17 can you think of, with the exception of National Parks,  
18 and perhaps the national capital area around Ottawa,  
19 where the Federal Government is the regional planning  
20 authority, except in the Territories? Do they  
21 get involved in this in the provinces?

22 A No, I don't think they  
23 do directly, although through Central Mortgage & Hous-  
24 ing they control housing policies and mortgages and  
25 things like that, they do exercise a certain amount  
26 of control that way. In other words, if you haven't  
27 got -- if you don't meet a zoning requirement, they  
28 won't approve, say, a house -- a mortgage on a  
29 house.

30 Q But that's not federal



Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 zoning, that's usually a zoning in the local area.

2 A Zoning as a rule is  
3 a municipal authority.



Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 MR: BAYLY: Q The reason  
2 I ask this is because it appears in a simplistic way  
3 in the Provinces, that zoning is done either by  
4 municipalities or by Provincial Governments in estab-  
5 lishing regional plans for example and if the federal  
6 government decides to do something which they consider  
7 to be in the national interests, then they exercise  
8 their expropriation power in order to do so, which  
9 may if it's within their sphere of jurisdiction,  
10 allow them to do it in spite of the plan. You've  
11 suggested in your zoning authority, that this be the  
12 creature of the federal government acting presumably  
13 in the national interest, without any regional hedge  
14 with the exception of the make-up of that zoning  
15 authority, that the people should be northern resi-  
16 dents. Is that correct?

17 WITNESS TEMPLETON: A I  
18 think perhaps I got lost in the middle of that. I  
19 think the --

20 Q Let me put it another  
21 way then, because I think I can clarify it. Why not  
22 use a more local government, either the territorial,  
23 a regional government of an area like the Delta or  
24 the municipalities in the region to develop the plan  
25 and then if something has to be done like the con-  
26 struction of a pipeline in the national interest,  
27 leave it to the federal government to exercise the  
28 expropriation power.

29 A I think the problem  
30 there is that to most Canadians, they don't know





Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 what land use -- land claims are and they don't know  
2 what is owned by the government of Canada by their  
3 definition, what's owned by the Government of Canada  
4 and what's owned by the native people and at the  
5 moment, many people, certainly in the federal govern-  
6 ment would say, that the federal government owns the  
7 land and so that I think they have to -- have to be  
8 party to -- I think they have to set up the original  
9 land use plan because of that and if you owned the  
10 land, you would want to have your say just as you --  
11 if the native people owned the land, of course they  
12 want to have their say, so I don't think you should  
13 exclude the federal government from it, either now  
14 or in the zoning authority. I'm not suggesting be-  
15 cause native people should be represented and local  
16 people should be represented, but that would exclude  
17 government of Canada people. The only rider I put  
18 on it, that I thought if the members of the committee  
19 should be northerners -- should be living in the  
20 north, so they have a --

21 Q No, I have no trouble  
22 with your authority once it's set up, but I'm con-  
23 cerned with the -- the generation of the initial plan  
24 which is then obviously administered, changed and  
25 dealt with by the authority which is much more re-  
26 gional than -- than national, in its membership in  
27 any event.

28 A I'm not sure that it's  
29 entirely regional. I can't accept the idea that the  
30 Mackenzie Delta is -- is regional in scope, it's



Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 national and perhaps international in scope, because  
2 of the uniqueness and importance of it, so, I wouldn't  
3 like to exclude the Government of Canada from -- from  
4 its considerations of that. That area is -- is per-  
5 haps special, but, I think that it applies everywhere.

6 Q Have you examined the  
7 efforts of the territorial and federal governments  
8 in the Delta Regional Planning Committee which was  
9 set up last year or so and attempted to construct a  
10 regional plan for the Mackenzie Delta area?

11 A Well, I don't know very  
12 much about that. I've talked to a few people casually  
13 and I really can't -- I don't think I could comment  
14 on that.

15 I think the main thing on  
16 that respect is that there has been a great deal of  
17 Land Use Planning attempted and it's a very difficult  
18 thing to come up with the first plan and it's very  
19 difficult to even come up with the first draft and  
20 people being what they are, leave tough decisions  
21 as long as they can and the hope that I had would be  
22 that the Commissioner would somehow or another force  
23 the -- force them to come up with the plans so that  
24 everybody could take a look at it.

25 Q But should this Commis-  
26 sion then get into recommending certain things that  
27 should go into the plan recipe? See, you said that's  
28 the federal responsibility and what I'm concerned  
29 with is, whether we've learned anything in this  
30 Inquiry that you think should be passed on to help



Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 formulate this plan?

2 A Well only of a general  
3 nature similar to what I recommended in a -- in a  
4 Mackenzie Delta zone, of corridor widths and some of  
5 those things of a general nature. I think there's  
6 a danger in going into too many details without  
7 being able to go through the planned development  
8 process which is a public participation process. In  
9 other words, you usually start off with something  
10 and you take it to communities and you discuss it  
11 with planners and all this sort of thing. I don't  
12 really think the Commissioner has that time to do  
13 that.

14 THE COMMISSIONER: One  
15 interesting thing about Mr. Templeton's proposal was  
16 this; this is simply an observation. The ubiquity  
17 of land claims was manifested by Mr. Templeton's  
18 talk on land use because having put land claims to  
19 one side, and gone on to develop his Land Use Proposal  
20 one quickly perceived that his proposal regarding the  
21 governance of land use in certain respects resembled  
22 the proposals that native organizations are putting  
23 forward under the heading of Land Claims for the  
24 governance of land use. You always wind up coming  
25 in by the same door you went out or else going out  
26 by the same door you went in whatever they -- I  
27 think it's from Confucious.

28 : A I'm  
29 not sure whether I'm in or out now.

MR. BAYLY: Well let's





Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 assume you're in and the observation that you've made  
2 it's difficult to deal with land claims at this point,  
3 therefore let's have a Land Use Plan and Pipeline  
4 Claims in later. I think it maybe --

5 A Well not really. I  
6 don't think you can separate land claims settlement  
7 from land use, they're part and parcel of the same  
8 thing and what I was trying to do, was, recognizing  
9 the practicalities of the time, to say let's go as  
10 far as we can on both of them and try to establish  
11 the idea that in everybody's mind, northerners and  
12 southerners that something is -- we've gone as far  
13 as we could go at this time and try and build up  
14 some confidence that -- that we will manage the  
15 north in its, to the best of our ability and I'm  
16 speaking of we, as Canadians now, not --

17 Q The only difficulty  
18 I have with that Mr. Templeton, is that, the criticism  
19 of the Delta Regional Plan as it was being developed  
20 from native peoples and I know you're concerned with  
21 what their criticisms may be, because you want them  
22 to be able to live with this, was that, Land Use  
23 Planning or the creation of a Land Use Plan is in  
24 fact, what the land claims is all about and to dis-  
25 cuss one in the absence of the other it makes little  
26 sense. What I'm going to suggest to you because of  
27 that, is that, in order to create an initial plan the  
28 government has to either through this Inquiry or by  
29 going into the community through one of its other  
30 arms or agencies, determine what areas are important



Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

to people, so that those can at least initially be  
set aside pending the settlement, so that whatever  
use they are put to in the interim, does not destroy  
potential other uses.



Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 A Of course. But I think  
2 the government has gone a long way in that and I think  
3 the 1976 Land Use Information Series shows a great  
4 deal of that. Now, it probably doesn't go as far as  
5 the native organizations think it should go, but it  
6 has gone quite a ways in drawing a line around a certain  
7 area and say this is used for these uses on a temporary  
8 basis or whatever designation they give.

9 I think they have gone quite  
10 a ways in dealing with these aspects.

11 Q Well, on another area,  
12 you have made a plea that our recommendations to this  
13 Inquiry and our argument be addressed to the site-  
14 specific as well as the general recommendation.  
15 You've made your own recommendation site-specific  
16 as they pertain to the application. I'm concerned  
17 that you may not go farther or that you may even  
18 recommend that we don't go farther with regards to  
19 site-specific recommendations which will assist in  
20 the development of a land use plan and I use this as  
21 an example.

22 One of the problems that has  
23 been raised by the Environment Protection Board and  
24 others on the subject of the North Slope routing is  
25 that the North Slope route might be alright for a  
26 gas pipeline, but even Arctic Gas' environmental  
27 consultants express concern if that became a corridor  
28 which was to be shared by a permanent road and an  
29 oil pipeline.

30 A That's correct.



Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

Q So, we're getting into land use planning considerations in determining site-specific recommendations which may pertain more to a road and to an oil pipeline, than to a gas pipeline and should we be doing that, in your opinion?

A Well, I guess this is the problem of the pipeline guidelines. The guidelines seem to have been drawn up with the idea of the Mackenzie Valley as being the corridor but they included the northern Yukon as almost a sideline but the guidelines seem to be talking always about the Mackenzie Valley and you can't help but wonder if this other didn't just kind of slip in.

THE COMMISSIONER: Mr. Templeton, I know the guidelines well and you'll find that they refer to two corridors and they specify them and this unintended reflection on the public servants who drafted the guidelines is not altogether justified because it's clear that they did contemplate two corridors and they specify those corridors in a geographic sense in terms. However, I shouldn't be getting into this.

A I recognize the specified two routes.

Q Two corridors, sir. However, I shouldn't be arguing with you.

A Perhaps I've always read them wrong but I thought that you could--I very nicely categorized that in my own mind that the northern Yukon was the right-of-way and the Mackenzie was a corridor





Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

and to me they're quite different. That is the right-of-way applies only to the gas pipeline and that it isn't a corridor. But to clarify that, I think the Environment Protection Board said that they do not recommend there be a corridor across the northern Yukon and I would recommend that--

Q Well, you said sir, you and your colleagues, as I recall, said that if there were a gas pipeline right-of-way across the northern Yukon, one of the conditions should be that there be no further pipeline development and no oil pipeline built. That's a condition you can't really impose on Arctic Gas, speaking of the opponent. It's really a matter of policy for the Federal Government to lay down. Isn't that what you said, or have I got it wrong?

A Yes, I think that's right, but I don't have the restriction of telling the government what to do. I don't think there's anything wrong with saying to the Government of Canada, we've looked at this and regardless of your policies in the past or anything else, I don't recommend the corridor and I have no hesitation in recommending that as one of your terms and conditions too.

Q Well, you're adhering to the position you took in June of last year and January of this year then?

A Yes. I can still accept the right-of-way.

Q Yes.



Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

A But I can't accept the corridor. The right-of-way is 150 feet wide or something, not five miles.

MR. BAYLY: Now, you're prepared then to discuss the question of corridor in the Mackenzie Valley.

A Yes.

Q And to be site specific on that, because you've recommended today that there be a corridor five miles wide and two miles in certain places, contemplating the possibility of other facilities other than the gas pipeline?

A Yes.

Q Now, is your conclusion on whether or not there should be a corridor at all? Is it based on hard scientific evidence or are we faced with the situation where it seems nicer not to use up too much wilderness and let's put the facilities no farther apart than five miles?

A Well, when you're building a land use plan, when you're preparing one, you have to take into account the things that are there, government policy, people's aspirations for the future and many, many things. There already is a road to the southern end and there is a road in the northern end and you can't get around that. It's irreversible. There are communities along there and there's airstrips and there's communications and then there's a winter road.

Also, there's stated government



Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 policies that they were going to build a road the whole  
2 way on a priority basis, now stopped, but you have to  
3 take into account the government policies and I think  
4 my experience is that the government policy is that  
5 it is going to build that road.  
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Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 Q But you're putting into --

2 THE COMMISSIONER: You're  
3 going to build what?

4 A Build a road. It's just  
5 a matter of when.

6 MR. BAYLY: Q Your recommen-  
7 dation, though, of putting everything in the corridor  
8 is based on first of all it probably works out better  
9 in a land use plan; secondly, there are other facili-  
10 ties already planned or commenced or partly built.

11 A Yes.

12 Q That are there anyway.

13 A The government policy  
14 is.

15 Q But have we any evidence  
16 -- and I'm not suggesting that what you have put for-  
17 ward is a bad idea -- but have we any evidence that  
18 it's going to be better for the various species of  
19 animals, for example, the fish, to have everything  
20 close together? Or is this a planning mechanism?

21 A I don't think that  
22 anything is good for the species. No development is  
23 best for the species.

24 Q Nobody has grappled  
25 with that, Mr. Templeton.

26 A Pardon me?

27 Q Nobody seems to have  
28 grappled with whether just on a scientific basis it  
29 makes sense to put facilities close together. I don't  
30 know whether they would damage each other, or whether



Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1     --

2                   A     Well, I think there have  
3     been quite a number of studies done, particularly in  
4     United States where environmentally and socially it's  
5     probably better to concentrate them because you don't  
6     have all of the networks going out into all areas.

7                   Q     I think in Southern  
8     Ontario they call it the greenbelt that they put all  
9     these things in.

10                   Now, during the 18-month  
11     period that you propose between the approval in  
12     principle of whatever facility gets the go-ahead and  
13     the startup -- this is on page 7 of that supplement  
14     to your evidence. Have you thought of what mechanisms  
15     would look after land use or land use planning in  
16     the interim, and what they would be guided by?

17                   A     Well, there would be,  
18     as I understand or what I'm suggesting is that the  
19     corridor be drawn with a right-of-way within that  
20     corridor, and that the rest be frozen until the  
21     authority could become active and consider ancillary  
22     uses.

23                   Q     Well, that may be all  
24     well and good in the Mackenzie Valley, but what is  
25     going to happen in the delta and offshore where oil  
26     and gas exploration companies are bound to be scrambling  
27     to find more fuel to put into the pipeline, and  
28     they are going to be making land use permit applica-  
29     tions for quarrying sites and wharf sites, etc.,  
30     probably more intensively than they have done at any



Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 time in the past.

2 A Yes, I recognize that,  
3 but that responsibility rests with the Government of  
4 Canada whose job it is to plan for the nation's  
5 future.

6 Q Well, let's talk about  
7 the sequence of that, though, because I think that  
8 may be important. Should the initial land use  
9 plan be put forward prior to this approval in  
10 principle, so that the people who are involved in the  
11 present structures for granting land use permits, for  
12 example, will have some guide as to where and how  
13 to grant applications? This may be very important  
14 to local people, for example.

15 A I don't think that it's  
16 practical to try and put in a land use plan too  
17 quickly. If you're going to take the communities  
18 into your planning process, you've got to give them  
19 time to consider it and there may be a problem  
20 initially, but I'm afraid that's what we've been  
21 living with just now for many years, and I think we  
22 are going to have to live with it for another 18  
23 months.

24 Q O.K., so when you talk  
25 about a freeze, you don't really mean a freeze in the  
26 sense that certain activities, particularly in the  
27 delta area --

28 A Oh yes.

29 Q -- continue to go ahead.

30 A Oh, I mean a freeze,



Templeton, Doyle, Hernandez  
Cross-Exam by Bayle

1 but a freeze I'm recommending that there be a land  
2 use freeze and this is not at all unusual all over  
3 Canada, that while they prepare a master plan or  
4 something else, that they freeze the zoning. But that  
5 doesn't mean that everything is absolutely frozen;  
6 it means only that anybody who wants to change some-  
7 thing has to go through a process with the existing  
8 planning authority, which in this case is the Govern-  
9 ment of Canada, to demonstrate that what they're  
10 doing is probably going to be compatible with the  
11 long-term use, and they have to demonstrate something.  
12 I don't think you can just walk in and say, "I want  
13 to stake a claim on all this gravel up here," because  
14 I wouldn't think that the Government of Canada would  
15 permit that.

16 Q Now, you talked about  
17 defining the community boundaries at page 7 of your  
18 supplement. Now, we heard yesterday from Mr. Baring-  
19 Gould and Miss Bennett that Valdez had set for itself  
20 fairly wide municipal boundaries, and this turned  
21 out to be a benefit because a lot of the facilities  
22 that were located in the area were within the muni-  
23 cipal boundaries and this created some tax revenues  
24 which eventually will be able to be used to offset  
25 some of the particularly the social impacts that have  
26 taken place. Some other communities, I think Stewart  
27 was one that had not established a wide municipal  
28 boundary, and I think it was Glenallen that he refer-  
29 red to, which had no -- was not an incorporated  
30 village and had a lot of problems, it could have no





Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 influence on the land use around it.

2 Now, you've said villages  
3 should be incorporated and their boundaries should  
4 be set. How do we determine what the boundaries of  
5 a village should be, because we've already had Inuvik  
6 prior to your appearance here today, apply for quite  
7 a wide boundary to take in a large part of the  
8 surrounding area?

9 A Well, this has been  
10 discussed in many jurisdictions over the years, and  
11 I think it can be handled by -- in a number of ways.  
12 The taxation point that you bring up, industrial and  
13 commercial taxation is needed in all communities in  
14 Canada so that they can exist. Otherwise they have  
15 to be subsidized by somebody, because of the school  
16 problems and others.

17 But you can -- the Govern-  
18 ment of Canada can assign industrial taxation to a  
19 city, even though it may not be inside the boundaries,  
20 and this Provincial Governments have done this in  
21 a number of instances. Some instances Crown  
22 corporations of the Federal Government give grants  
23 in lieu of taxes, even though they're outside the  
24 community, and I think that can be -- the problem of  
25 having too wide a boundary is lots of examples of  
26 that and lots of bad examples, because they start  
27 thinking about the industrial taxation and forget that  
28 when they take on a large area they take on respon-  
29 sibilities to provide services like schools and  
30 buses and fire and police and sewer and water and



Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 all the rest of it, and if they have a very large  
2 boundary and allow ribbon development, they will get  
3 into serious financial difficulties because they can't  
4 afford to service it. So if their zoning inside the  
5 town -- I think I'm perhaps getting too far into a  
6 town planning now. I'm really talking about the broad  
7 aspects.



Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

Q I'm concerned about how all these villages protect themselves. For example, if a community, I think Fort Good Hope would be an example, have a potential gravel quarry site which is within two miles from its town center, and it decided that it should, in setting the boundary of its community, include that so it would have some control over it and if it had a lake that it got its drinking water out of, it might well want to protect that so that it wasn't<sup>used</sup> up to make snow roads so that the people wouldn't have to pay additional taxes to bring alternate sources of water and gravel.

A Well, those can be handled by a land use zoning. You don't have to be inside the incorporated part of the city. I think Vancouver gets its water from outside the city, outside of Greater Vancouver and many places. Winnipeg gets it in Shoal Lake on the border of Ontario. I don't think that's an insurmountable problem.

Q Well, you're prepared then to allow or suggest to the Government of Canada to try and figure who, for example, should share the Yaya Lake Esker?

A Yes, somebody has to put some controls on that, otherwise it will all be gone. I would think that that regional asset that should be managed very carefully.

Q Because you feel it may only be on the regional interest to save<sup>some</sup> of that gravel for future generations in the Richards Island area.





Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 It may be in the national interest to use that gravel  
2 to build the pipeline.

3 A Well, the national  
4 interest though is surely not short-termed, you know.

5 Q Sometimes we think it  
6 only lasts till the next election.

7 THE COMMISSIONER: Well, speak  
8 for yourself.

9 MR. BAYLY: Now, let me turn  
10 to your comments on the single agencies and I understand  
11 that there are various possibilities. You can either  
12 leave things the way they are and hope that the existing  
13 agencies will do the jobs they've been doing and perhaps  
14 increase their staff or you go for a separate agency,  
15 either on the model that Mr. Doyle has suggested, or  
16 on some other model?

17 A Perhaps Mr. Doyle could  
18 answer that.

19 Q Those are really the  
20 choices that are available.

21 WITNESS DOYLE: That's correct.

22 Q Now, I have a paper here,  
23 Mr. Commissioner, that Commission Council was kind  
24 enough to get for me and it's a summary of the "Working  
25 Group on Government Operations During Northern Pipeline  
26 Construction", prepared by Mr. Dave Gee and others and  
27 it sets out two options. I understand, Mr. Doyle,  
28 you're aware of the existence of this study group and  
29 the two options they've put forward.

A Yes, in a cursory fashion.



1 Q Yes, one of them being  
2 to leave things the way they are and the other to set  
3 up an authority which takes over a large number of the--

4 A I believe they refer to  
5 it as the one window approach.

6 Q Yes. I gather that has  
7 something to do with where you go to get all your  
8 tickets?

9 A Right.

10 THE COMMISSIONER: Oh, I see.  
11 That was the window for construction. Remember that  
12 window?

13 MR. BAYLY: I thought it was  
14 actually but I couldn't fit it into that windowframe.  
15 Now, they say in this report on page five that the  
16 single agency could be the National Energy Board within  
17 large responsibilities or a new Crown corporation as  
18 provided for by the Financial Administration Act.  
19 Would you suggest that your agency either be the  
20 National Energy Board with the large responsibilities  
21 or a new Crown corporation or something separate from  
22 those two options?

23 A I wouldn't want to give  
24 you a nice simple answer to that, Mr. Bayly, basically  
25 because what I endeavored to do with the group of  
26 people I had looking at an agency was to define the  
27 magnitude of the task, to decide if it was feasible  
28 to see what the resources in terms of people would be  
29 and when you'd want to get them.

30 THE COMMISSIONER: Excuse me,



1 Mr. Doyle. What was that question again?

2 MR. BAYLY: The question was  
3 whether Mr. Doyle had any opinion as to whether the  
4 single agency could be either the National Energy Board  
5 with the large responsibilities or a new Crown  
6 corporation as provided for by the Financial Admini-  
7 stration Act and I'm quoting from this report which  
8 makes these two suggestions for a single agency.

9 THE COMMISSIONER: Yes. Well,  
10 it seems to me, Mr. Bayly, I know I discussed this  
11 with all of you once before, it seems to me that it  
12 may well be appropriate for me to recommend to the  
13 government if Mr. Templeton, Mr. Doyle and those who--  
14 Mr. Hernandez and those of like mind persuade me that  
15 it is sound, that in order for the terms and conditions  
16 that I recommend be imposed on any right-of-way that  
17 is granted, in order for them to be efficacious  
18 that there be a single authority empowered to administer  
19 and enforce. So, I'm willing to listen to that. But  
20 I don't think it is appropriate for me to go beyond  
21 that and to suggest to the Government of Canada that  
22 a particular agency or department or newly established  
23 entity should do that. It seems to me that I then  
24 am engaged in passing a judgment on the capacities of  
25 the department and agencies of the Government of Canada  
26 and no one has asked me to do that and no one expects  
27 me to do that and I don't intend to do it.

28 MR. BAYLY: I'm not suggesting  
29 that you do, sir, but we do have thoughts from this  
30 group that the agency should spring up and dissolve at





Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 the end of this process and I want them to say what  
2 kind of an agency is likely to be able to do that.  
3 I don't care quite frankly whether it's one department  
4 or another, in their opinion, but there are these  
5 two alternatives. One being an existing agency with  
6 expanded responsibilities and the other being the  
7 setting up of a new agency for the specific project.

8 If you want to put it as  
9 generally as that so that we don't get into the various  
10 existing agencies, I'm quite content to do that.

11 THE COMMISSIONER: Okay.

12 MR. BAYLY: I think that is  
13 important to find out whether an agency could destruct

14 THE COMMISSIONER: All right,  
15 in that limited sense.

16 A Well, Mr. Bayly, to, in  
17 that limited sense, answer your question, I started  
18 with the assumption that a single agency would be  
19 constituted. That was my starting assumption. Having  
20 gone through the definition of level of control and  
21 the project schedule and putting them together and  
22 getting manpower outputs and expertise and scheduling,  
23 I'm not in a position to come back and pass judgment  
24 on my assumptions.

25 I stated at the outset that  
26 I took that as an assumption. I really don't feel  
27 qualified to respond to your question beyond that. I  
28 took it as an assumption and from there I went on.  
29 I didn't evaluate whether or not it was the best of the  
30 options. I did not evaluate two options. I did not





Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 evaluate the option of trying to do with existing  
2 mechanisms. I just looked at the option of a single  
3 agency. Now, what I did do was show that the single  
4 agency was feasible, that you could put it together.  
5 Is that clear?

6 Q I understand that. So,  
7 you haven't even thought of whether a new agency could  
8 grow out of an existing organization or whether in  
9 order for it to dissolve at the end of the project,  
10 it would, in your opinion, have to be something new?  
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Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1                   A     I wouldn't say I haven't  
2     thought about it, but I haven't studied it to the  
3     length that I studied the requirements in terms of  
4     scheduling and activities for a single agency.

5                   Q     Well, do you consider  
6     it important that the agency dissolve at the end of  
7     the project?     I think Mr. Templeton, you have an  
8     answer to that. Maybe Mr. Doyle has a different one.

9                   A     My answer to that is  
10    that if you create an agency for this project, that  
11    that agency should have a fixed goal, which is to  
12    see this project through, and that when that job is  
13    done that the work of that agency is terminated and  
14    that ongoing responsibilities for the long-term  
15    operation and maintenance of the pipeline would transfer  
16    back to existing Federal and Territorial Government  
17    departments.

18                  Q     Would you include in  
19    that the possibility of looping and twinning, or  
20    twinning of the pipeline?

21                  A     I didn't consider  
22    what would be involved in looping or indeed the timing  
23    of looping. Your question, I think, presupposes a  
24    certain timing. Whether when you again taking the  
25    assumption of a single agency, whether as time passes,  
26    five years, with five years' construction experience  
27    under your belt, if you're then faced with the  
28    question of whether you're faced with the question  
29    of looping and you decide what mechanism should we  
30    now use to control the looping project, if that comes



Templaton, Doyle, Hernandez  
Cross-Exam by Bayly

1 along, then at that time you must examine whether or  
2 not the agency should continue to supervise looping  
3 or not. But I haven't examined that.

4 Q Do you have any opinion  
5 as to whether the lead time for the creation and  
6 setting up of a new authority would be longer than  
7 of consolidating into one office the present authorities  
8 and beefing up their present staff?

9 A No. As I said, I haven't  
10 examined option No. 1 that you indicated, so I really  
11 haven't at all examined -- I haven't examined the  
12 details of running with the existing government  
13 organizations and therefore I cannot pass a judgment  
14 as to which is the better way to go, which is the  
15 most expeditious.

16 Q Did you look at the  
17 possibility of this single authority becoming for  
18 the period of oil and gas or really let's just confine  
19 it to pipeline construction, virtually a government or  
20 the government of the Western Arctic?

21 A That was a consideration  
22 and something that we wrestled with in undertaking  
23 this study, because we recognized that within the  
24 formation of a single agency that existing government  
25 departments would still have a role to play in the  
26 Western Arctic. We also recognized that there would  
27 be boundary difficulties as to where the project  
28 ended, and we didn't resolve those. For example, does  
29 the project end with the people directly under a  
30 contract to the pipeline companies for the purposes





Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 of the agency, or does it end at all other companies  
2 that are sources of supplies to contractors? That's  
3 the difficulty. Is an airline company that's supplying  
4 air services to the pipeline operation, that would  
5 surely come under the agency, the activities as they  
6 relate to the pipeline. But that same aircraft charter  
7 company may be carrying on many other activities.  
8 Would they be beyond the scope of the agency? Of course  
9 there are difficulties here, and really while I say we  
10 recognize these, we certainly didn't resolve them.  
11 That wasn't the prime focus of our endeavor.

12 Q Did you do the same thing  
13 that the Guy report did and find that there were some  
14 90 or so Statutes and ordinances that either the  
15 pipeline authority, if there were a single one, or  
16 the various agencies would have to administer, at  
17 least in part?

18 A Where we went on that  
19 problem was that at the time that we were undertaking  
20 this particular study, the Federal Government at that  
21 time had a number of Task Forces reporting to the  
22 working group that you referred to, and those Task  
23 Forces were, amongst other things, charged with  
24 delineating the responsibilities and mandates of  
25 many different departments of government, insofar as  
26 they would relate to this project.

27 We realize that ideally our  
28 study might have been most beneficial if we awaited  
29 the delineation of all those authorities and then tried  
30 to dove-tail everything together into a functional



Templeton, Doyle, Hernandez  
Cross-Exam by Bayly

1 management plan. However, because we were working along  
2 at the same time, we agreed between ourselves and the  
3 people that we were under contract to that we should  
4 really disregard the effort that was ongoing through  
5 the Task Forces and the working group and take a  
6 -- not a legal but just a broad definition of  
7 "environment" and really look at the magnitude of  
8 the task within that very broad hazy definition of  
9 "environment".

10 Q Did you envisage that  
11 for infractions of regulations under the control of  
12 the authority that the authority would be in charge  
13 of its own pursuing of these infractions, or did you  
14 envisage that these would be turned over either to  
15 the Department of Justice or legal counsel for the  
16 various departments of government that exist, or the  
17 Crown attorney's office?

18 A Insofar as we recognized  
19 that the authority that would be vested in a single  
20 agency would have to be clear, that is that the  
21 agency must have the authority to say, "Stop," to some  
22 small activity or some large activity, if the situation  
23 warrants it. Now, we didn't pursue matters beyond that,  
24 and indicate at all where legal recourse or whatever  
25 might be taken.

26 MR. BAYLY: Those are all the  
27 questions I have. Thank you very much, gentlemen.

28 MR. GOUDGE: Mr. Veale?

29  
30 CROSS-EXAMINATION BY MR. VEALE:



Templeton, Doyle, Hernandez  
Cross-Exam by Veale

1 Q Mr. Templeton or Mr,  
2 Doyle, I take it when you go to specific recommendations  
3 you would prefer this Inquiry to come to, then you in-  
4 corporate them into final design, and you actually  
5 incorporate them into contracts between the applicant  
6 and sub-contractors so that they're all written into  
7 the project at an early stage. I take it that's what  
8 you're driving at. There's still what appears to  
9 me to be a gap, and that is the gap between the sub-  
10 contractor who has signed a contract saying that he  
11 will live up to certain conditions, and his employee,  
12 you know, the perverbial cat driver who is on the line.

13 Now, how do you manage and  
14 control that cat driver? I mean I think this is one  
15 of the problems that they had on the Alyeska construc-  
16 tion and are having now.

17 WITNESS TEMPLETON: Well, one  
18 of the reasons that we are so insistant on having  
19 the regulations put out before final approval is  
20 given is that these stipulations or code items or  
21 whatever you call them should be known ahead of time,  
22 and the regulatory agency would say to the pipeline  
23 company, "O.K., you can go ahead, but here are a  
24 bunch of stipulations and if you don't live up to those  
25 stipulations we're going to lay a claim against you  
26 on your performance bond."

27 Now, the pipeline company  
28 is quite familiar with that and will pass that onto  
29 his sub-contractor and say, "Here are the stipulations  
30 that you have to adhere to," and he passes that onto



Templeton, Doyle, Hernandez  
Cross-Exam by Vaale

1 his employees and so on, and that's the way you do it.  
2 This is the reason that we want these stipulations  
3 to be put in at the outset so before those contracts  
4 are given to the suppliers and contractors and sub-  
5 contractors, that they have a stipulation that they  
6 know about and it's in the contract.  
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Templeton, Doyle, Hernandez  
Cross-Exam by Veale

1 Q Okay. Well who is the  
2 penalty going to be assessed against? Is it going to  
3 be assessed against the sub-contractor or the applicant  
4 permittee?

5 A Well the Agency deals  
6 only with the -- with the permittee and the permittee  
7 has to deal with his -- whoever he picks to do his  
8 work.

9 Q So the Agency then, is  
10 not going to get involved with the man right down  
11 driving the cat?

12 A No.

13 Q Except on an inspection  
14 basis?

15 A No he wouldn't --  
16 supervisory, agency supervisory people don't talk  
17 to the -- or give instructions to cat drivers, that  
18 has to come through the -- through the hierarchy,  
19 where the cat driver gets his pay cheque, is usually  
20 the place that has the authority over him.

21 Q So the agency is not  
22 going to be involved in -- in other words it will be  
23 up to the applicant to -- to educate his workers and  
24 so on and so forth to follow the code that the Agency  
25 develops?

26 A Well I think the  
27 Environment Protection Board had provided quite a bit  
28 of detail on the sort of education and the sort of  
29 magnitude of the education job and it was our recom-  
30 mendation that every person working on the job would



Templeton, Doyle, Hernandez  
Cross-Exam by Veale

1 receive some degree of training as to environmental  
2 conditions, and I assume social conditions as well.

3 Q Well when you talk about  
4 the performance bond, then, I take it from what you  
5 said, that the performance bond is a bond that will  
6 be activated, that is the mechanism to trigger a pay-  
7 ment out of the bond will be done by the agency.

8 A Right. It will lay a  
9 claim against the -- against the pipeline company  
10 first and if they can't get that satisfied, they go  
11 to the bonding company, who has guaranteed the per-  
12 formance.

13 Q Okay. I would just  
14 like to take a minute just to discuss what kind of  
15 penalties you're talking about. If you're talking  
16 about a five hundred foot over-flight of Caribou  
17 and let's say a pilot goes under that, what's the  
18 penalty then,,what's the response?

19 A Well it's pretty hard  
20 to judge all these cases you know. These are -- I  
21 think the courts handle this sort of thing every day  
22 to do with -- don't they?

23 Q Well, I don't think  
24 they handle them in the volume that this pipeline  
25 agency may be concerned over. In other words, you're  
26 not going to take every over-flight or under-flight  
27 whatever it is, to a court and I take it that's why  
28 the agency in the bonding process has been recommended.

29 A No, you don't -- you  
30 don't to a court, but if you -- one -- one flight, if



Templeton, Doyle, Hernandez  
Cross-Exam by Veale

1 it doesn't seemingly affect things that much, you  
2 might get by with a warning or something like that,  
3 but, if it were deliberate flying over the calving  
4 grounds, I think you would take a pretty serious view  
5 and try to make some kind of an assessment.

6 WITNESS DOYLE: I might  
7 just add that looking at that sort of problem and  
8 many others that you could raise say in the context  
9 of a welder. If a welder does one bad weld, I don't  
10 imagine you'd fire him off the job. If he does 20  
11 he'd be in real steep trouble, so you know -- I think  
12 in that sort of context you have to look at all these  
13 little violations.

14 Q Mr. Doyle, there's one  
15 thing that I wasn't quite clear about in the concept  
16 of the agency. There's been a lot of discussion  
17 about whether construction can be completed in one  
18 winter across the north coast of the Yukon. Now is  
19 it your concept, of this agency, that when the final  
20 design comes in, the agencies may say, you can't do  
21 it in one winter, it'll have to be a two winter or  
22 a three winter construction schedule? Is that the  
23 kind of decision making that you envisage for this  
24 agency?

25 A Yes.  
26 I indicated this morning that one of the requirements  
27 of the agency would be to examine overall projects,  
28 schedules and timing and of course in that, and as a  
29 construction experience is built up, say along the  
30 Mackenzie Valley, there would be an experience factor





Templeton, Doyle, Hernandez  
Cross-Exam by Veale

1 in there, which will tend to adjust schedules in any  
2 event and at that time, one would hope that the pipe-  
3 line company wouldn't be coming forward with a up-  
4 dated schedule that would say, we will build it in  
5 one winter across the Coast if all indications are  
6 from the two years of experience on the Mackenzie  
7 Valley that indeed it can not be done. So I think  
8 there's a feed-back factor here.

9 Q My next question is  
10 possibly for Mr. Hernandez. I mean it relates to the  
11 the map that you presented on the Interior route and  
12 I realize you presented this as an example, but I  
13 have some specific interest in that. You haven't  
14 made any site specific recommendations relating to  
15 the inter-action of the Dempster Highway and scheduling  
16 and the Porcupine Caribou herd and a great deal of  
17 evidence has been heard at the Inquiry on that inter-  
18 action. Now isn't that the kind of site specific  
19 recommendation you should have in there?

20 WITNESS HERNANDEZ: Yes  
21 I think those have to be added on during the additional  
22 final site review process we discussed before as more  
23 information comes in you've got to look at what it  
24 means, are there new additional concerns that have to  
25 be looked at and these kinds of things have to be  
26 looked at, I wasn't able to.

27 Q And I take it then,  
28 that you're not able at this time to talk about the  
29 specific recommendation of Mr. Templeton, relating  
30 to actually having the Interior Route go up the



Templeton, Doyle, Hernandez  
Cross-Exam by Veale

1 Dempster Highway?

2 A I didn't look at that  
3 at all, no. I haven't --

4 Q Mr. Templeton, why  
5 are you recommending that Interior Route? I mean  
6 that's what you mean by the Interior Route, isn't  
7 it?

8 WITNESS TEMPLETON: Well  
9 Dempster Highway?

10 MR. VEALE: Q Well Mr.  
11 Templeton's evidence is, that he doesn't like the  
12 Coastal Route and he would prefer an Interior Route  
13 and then he says, the Interior Route he prefers I  
14 think as the route which would actually go far south  
15 of Old Crow and up the Dempster Highway and through  
16 the Richardson Mountains.

17 THE COMMISSIONER: Well is  
18 that the Calef Route?

19 A Well I  
20 didn't say that. Perhaps I should repeat what I did  
21 say.

22 THE COMMISSIONER: Page 16.  
23 Should follow the Dempster Highway through the  
24 Richardsons.

25 A Yes, that's right. It's  
26 only -- it's only through the Pass, through the  
27 Richardson Mountains. In other words, the Interior  
28 Route of Arctic Gas is after it is through the  
29 Richardson Mountains from the Mackenzie, it is within  
30 I think 16 miles or something of the Dempster Highway



Templeton, Doyle, Hernandez  
Cross-Exam by Veale

1 and so I say rather than use another Pass, that it  
2 would be better to go along the same Pass as the  
3 Dempster Highway until it gets through the Richardson  
4 Mountains and then go on to the route that they propose.  
5 It's only -- this isn't that long a length, but it's --  
6 I don't really see a reason for -- for going into  
7 another Pass.

8 Q Oh, I see. In other  
9 words, the route will go as the applicant as proposed  
10 until it reaches the Richardsons and then you're saying  
11 it will cut south to the Dempster Highway?

12 A You're coming from the  
13 west now?

14 Q Yes.

15 A All right, yes. That's  
16 right. It's not very far south though, it's just --  
17 they're quite close together on the west side of the  
18 Richardson Mountains.

19 Q So you're not then,  
20 endorsing with the Calef proposal?

21 A Well I really like the  
22 Calef proposal which is the one -- is a projected  
23 route south of the Porcupine River, because it --  
24 the area north of the Porcupine has some social  
25 implications to Old Crow and it's rather a unique  
26 area and it would be nice to stay out of it if  
27 possible, but, I didn't -- I would -- from what I  
28 know, I would sooner have that, but, I really don't  
29 know enough to be able to -- to compare them, because  
30 it has never been studied in detail and from looking



Templeton, Doyle, Hernandez  
Cross-Exam by Veale

1 at it on the map and certainly Calef has flown it  
2 many times and recommended very highly, but, I  
3 think without more knowledge I don't think I can  
4 come out and recommend it. At one time Gas Arctic  
5 before many years ago, had a projected route there  
6 and they disgarded it because, I think of cost, but  
7 I'm not -- I don't really know all the implications  
8 of it.  
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Templeton, Doyle, Hernandez  
Cross-Exam by Veale

1                   Q     This may be a question  
2     for Mr. Doyle. On your evidence this morning and I'm  
3     referring now to the figure 7, following page 36, which  
4     is the typical project development. I think you touched  
5     on a point that has always concerned me and that is,  
6     if you establish the offloading area as the first step,  
7     my difficulty is how does the applicant get to the  
8     borrow area in order to make an access road? How is  
9     all the initial set-up of the camp structure and, you  
10    know, the airstrip, the sewage lagoon, the station  
11    pad; how is that done without a tremendous amount of  
12    disturbance before anything is in place?

13                   WITNESS DOYLE: I would like  
14    to answer that question from a sort of practical  
15    construction point of view. If one were on the river-  
16    bank and you wanted to get to a designated borrow pit,  
17    you would have with you an aerial photograph of the  
18    area. If someone had already selected a route for  
19    you to get there, of course, with your clearing crew  
20    you'd cut access in along that selected route. So,  
21    that's pretty straight forward.

22                   With regard to the problem  
23    of disturbance in doing that, one recognizes that if  
24    you're actually cutting the access for a permanent  
25    road which you would build, that the damage to the  
26    terrain in clearing and getting in there will, of  
27    course, be covered over by the subsequent laying of  
28    a road.

29                   So, that's really how one  
30    approaches this. Now, if the access to the borrow site,



Templeton, Doyle, Hernandez  
Cross-Exam by Veale

1 the example given this morning should prove that the  
2 borrow resources weren't sufficient, then of course,  
3 one is faced with another problem of gaining access to  
4 either an additional source or a completely new source.

5 So, there may be problems  
6 there. However, again from the pipeline point of view,  
7 if you're in doubt about such things as the extent or  
8 quantity of the resource that's there, you may well,  
9 in picking your initial access, be guided by where  
10 areas are cleared now, such as along seismic lines and  
11 you may take a circuitous route to your potential  
12 borrow source along the seismic lines and minimize your  
13 cutting until you're indeed sure that the resource is  
14 there.

15 Q Well, I take it then the  
16 problem there--would that be compounded if you go to  
17 the North Slope and you have to not only--you have to  
18 get to the site of the snow to build the snow road.  
19 Is that a greater problem there?

20 A Well, I didn't weight  
21 the relative magnitude of problems as they relate to  
22 construction from, you know, one region to another.  
23 I was just looking at the types of activities that  
24 occur and where people would have to be on hand to  
25 check and inspect and supervise these kinds of field  
26 decisions.

27 Q Mr. Templeton, I take  
28 it that this agency does not in any way replace the  
29 public interest mechanism that you proposed in your  
30 environmental code?



Templeton, Doyle, Hernandez  
Cross-Exam by Veale

1 WITNESS TEMPLETON: Oh, well,  
2 you're talking about the Environmental Auditor Group.  
3 Is that right?

4 Q Exactly.

5 A No, no, that's completely  
6 different. The Environmental Auditor Group would be  
7 a very small group of people who would report publically.  
8 They would have no line function whatever. They would  
9 just make inspections and report publically as to the  
10 success of the environmental and perhaps social matters.

11 Q How would that  
12 Environmental Auditor Group liaise with the agency?  
13 Would they have full access to all the decision-making  
14 process that the agency was going through?

15 A Oh, I doubt it. I think  
16 they would really just look at it with the idea of how--  
17 in a broad brush, how is the project going? Is it  
18 doing what it said it was going to do? I don't think  
19 they should get into the details of how it's run or  
20 how--

21 Q Yes, but isn't that  
22 precisely the problem though that to represent the  
23 public interest, that Auditor group will have to  
24 know what is going on in the agency?

25 A I think the results are  
26 what counts and you let them look at the results and  
27 report to the people who are not doing the job. They  
28 don't have enough inspectors or they're not controlling  
29 the bulldozer operators or whatever and that's the  
30 sort of thing they would report. I think they'd only





Templeton, Doyle, Hernandez  
Cross-Exam by Veale

1 report performance. I don't think--you don't want to  
2 set up an organization that's going to be in competition  
3 in any way. All you want to do is have a look at it  
4 and tell them in broad brush whether they're doing it  
5 right or not.

6 Q Mr. Templeton, the  
7 problem that I see with your concept of Zoning Authority  
8 coming in prior to Land Claims Settlement is that it  
9 begs the question because haven't the native groups  
10 been saying that they want the land claim in order that  
11 they can set up their own institutional framework and  
12 have their own local control before any of the other  
13 things happen?

14 A I don't think I suggested  
15 that the Land Use Zoning Authority be set up ahead of  
16 the Land Claims Settlement. I think it was to be set  
17 up at the same time that final approval was given.  
18 In other words, it should be done at the same time.

19 Q In other words, you're  
20 suggesting that land claims are settled completely  
21 prior to the Zoning Authority appearing on the scene?

22 A Well, as far as is  
23 practical. That would be the goal that they would--  
24 the land claims would settled and the zoning authority  
25 would be set up at the same time the project would be  
26 approved, the final approval that is.

27 Q Well, then what's the  
28 necessity then of the corridor freeze?

29 A Well, to prevent  
30 unnecessary--prevent people from going in and tying up



Templeton, Doyle, Hernandez  
Cross-Exam by Veale  
Cross-Exam by Steeves

1 land for one reason or another that isn't going to  
2 be compatible with the long-term interest.

3 As soon as you decide you're  
4 going to change your zoning, there's a lot of  
5 opportunists that try to jump in and use up the  
6 resources and so, you've got to have the land use  
7 freeze to prevent that happening. You've got to have  
8 a mechanism to stop it.

9 Q Mr. Doyle, did you  
10 consider how the agency would evolve in terms of the  
11 management function that would be carried on on a  
12 daily basis with the Porcupine Caribou herd?  
13 In other words, the agency is not going to get into  
14 habitat management, but how will the agency liaise  
15 with a group that's responsible for the management  
16 of the herd?

17 WITNESS DOYLE: I didn't  
18 get into that, Mr. Veale.

19 MR. VEALE: Those are my  
20 questions, Mr. Commissioner.

21 THE COMMISSIONER: Thank you,  
22 Mr. Veale.

23 MR. GOUDGE: It's five  
24 o'clock. Well, perhaps--

25 CROSS-EXAMINATION BY MR. STEEVES:

26 Q I'm not quite sure I  
27 understand what you're telling us about the single  
28 agency concept. As I heard your evidence this  
29 afternoon, in answer to Mr. Veale I think, you said  
30 that you had assumed there would be a single agency and



Templeton, Doyle, Hernandez  
Cross-Exam by Steeves

1 you started at that position and went on from there.  
2 Now, as I read the assumption in your evidence you say  
3 the assumption you made was that there would be a  
4 single government regulatory agency to control from an  
5 environmental perspective the Mackenzie Valley Gas  
6 Pipeline Project.

7 Now, am I to understand that  
8 you're saying that the only need for monitoring and  
9 control is in the environmental area?  
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Templeton, Doyle, Hernandez  
Cross-Exam by Steeves

1 A No sir, you are not  
2 to understand that.

3 Q Is the whole of your  
4 evidence here, the 80 minutes of it, based on a study  
5 of the environmental problem only? I don't see any  
6 mention in it of social problems or economic problems,  
7 and of the monitoring of those problems by an agency.

8 A You are quite right,  
9 that is not in there. The terms of reference under  
10 which we did this work was to look at it from an  
11 environmental perspective, what would be the numbers  
12 of people that you would require from an environmental  
13 perspective; when would you need them?

14 Q So that if there's going  
15 to be a single agency in the absolute sense of that  
16 word "single", then your evidence is not, with respect,  
17 of that much assistance, is it?

18 A Well, it is, sir, in  
19 that it points out a mechanism and lays the groundwork  
20 for planning. It shows how to go about defining where  
21 you need people. Now, we started and we did it from  
22 an environmental perspective. Indeed, I indicated  
23 earlier in response to a question from Mr. Bayly that  
24 there were, I believe, seven Task Forces within the  
25 Federal Government reporting to the working group  
26 he referred to, looking at many different aspects.  
27 Some of them were looking at social-economic; others  
28 were looking at education and health. I've forgotten  
29 right now what many of them were dealing with. But  
30 we really were addressing ourselves to one component





Templeton, Doyle, Hernandez  
Cross-Exam by Steeves

1 or an area that had been addressed by one Task Force.  
2 Now what you would really have to do to put together  
3 the total agency requirements would be to address the  
4 many other interests that are involved in this project  
5 and integrate them with the types of people and the  
6 expertise level of effort and timing that we indicated  
7 in this report. So it's a -- it sets out the structure  
8 for planning but it hasn't done all the planning that  
9 is necessary.

10 Q Thank you.

11 What your proposal envisages, as I read it, is that  
12 the controls and stipulations that are to govern the  
13 building of this pipeline be worked out by this  
14 agency, and then consultation is to take place between  
15 the pipeline and the monitoring agency. Am I right in  
16 understanding that is really what you're saying?

17 A If I understand what  
18 you said, the controls and stipulations would be  
19 formulated by the agency, and would then be transmitted  
20 to the pipeline company, and their subsequent sub-  
21 missions of preliminary and final designs should be  
22 in compliance with those stipulations, controls, and  
23 etc.

24 Q So that the final design  
25 by the pipeline company necessarily must await the  
26 formulation of these regulations by the authority.  
27 Is that right?

28 A That's correct, sir.

29 Q Did you not know that  
30 one of the principal functions of this Inquiry was



Templeton, Doyle, Hernandez  
Cross-Exam by Steeves

1 to draft terms and conditions and to make recommenda-  
2 tions of those terms and conditions to the Government  
3 of Canada?

4 A I did, sir.

5 Q How is what you have  
6 suggested relate to those, if we are to take your  
7 advice are we to ignore those, the terms and conditions  
8 that come out of this Inquiry?

9 A No sir. In order for the  
10 agency to draw together the control framework, they  
11 must accept the recommendations of many government  
12 departments and they must also, of course, be very  
13 mindful of the detailed consideration that will have  
14 gone into the preparation of terms and conditions  
15 of this Inquiry and others, so that the body of  
16 knowledge around which the agency must ultimately  
17 prepare its stipulations is the total body, and not  
18 just part of the body of information.

19 Q I'm sorry, as I read  
20 the terms of reference setting up this Inquiry  
21 I thought that was one of its principal purposes,  
22 was to determine what the terms and conditions ought  
23 to be. Do you read them differently?

24 A No sir.

25 WITNESS TEMPLETON: I'll take  
26 a crack at that. I don't -- I'm not sure I have your  
27 point either. The terms and conditions that come  
28 out of this Inquiry would spell out the environmental  
29 and social stipulations that would be passed to the  
30 agency. The National Energy Board is hearing and



Templeton, Doyle, Hernandez  
Cross-Exam by Steeves

1 will bring out certain stipulations regarding other  
2 things that aren't considered at this point. Mr. Doyle  
3 is saying these have to be put together in the agency  
4 to administer the project.

5 Q Is that what you're  
6 saying, Mr. Doyle?

7 WITNESS DOYLE: Yes sir.

8 Q O.K.

9 WITNESS TEMPLETON: He's  
10 Irish, you know.

11 Q I know, I noticed.

12 WITNESS HERNANDEZ: Aren't  
13 we all?

14 Q My Irish is bad, I  
15 don't understand what you're trying to tell us here.  
16 Why do we have to create this -- if I may call it --  
17 a bureaucracy and gradually develop these people who  
18 would gradually work out various terms and conditions  
19 and principles and philosophies to manage the con-  
20 struction of this pipeline? It seems to me that it's  
21 a lot simpler than that. The N.E.B. is an agency  
22 which is charged by Statute with the responsibility  
23 to monitor the construction of the pipeline to whom  
24 it's given a certificate of convenience and necessity.  
25 Now, is this -- what's the connection between your  
26 scheme and the N.E.B., if any?

27 WITNESS DOYLE: I didn't  
28 examine at all, sir, what the role of the N.E.B. would  
29 be. We left it out of this consideration deliber-  
30 ately. However, just as a personal observation, I





1 -- to give the overall framework of things, it is  
2 true of course that this Inquiry will recommend to  
3 the Minister of Indian Affairs & Northern Development  
4 terms and conditions that ought to be imposed on a  
5 land tenure agreement, I believe, and they really  
6 are recommendations to the Minister, and I presume  
7 the Minister can do with those as he sees fit appropriate.  
8 What we are suggesting here is that if and when  
9 the pipeline goes ahead, that the administration of  
10 the control mechanism should be consolidated within  
11 one agency and it really doesn't pre-empt in any way  
12 the terms and conditions that will be recommended  
13 from this Inquiry.

14 THE COMMISSIONER: Mr. Doyle,  
15 you did this report for the Department of the  
16 Environment and I take it that in laying out your  
17 own terms of reference in the preparation of this  
18 report they didn't ask you to consider the appropriateness  
19 of the N.E.B. sharing of these functions. Is that  
20 where we're at?

21 A That's correct, Mr.  
22 Commissioner. What we -- the way we looked at this  
23 is that for a number of agencies and interests and  
24 subject areas, groups of people can identify levels  
25 of control, and the level of control that may be  
26 identified by many different groups for this project  
27 of course, is different. So when you take a given  
28 level of control and apply it to a project schedule  
29 you get an output in terms of people that you need.

30 Now, one could, of course,



Templeton, Doyle, Hernandez  
Cross-Exam by Steeves

1 undertake to do this for many of the other interests,  
2 the Energy Board being one, interests within the  
3 Department of Indian Affairs would be another, and  
4 really you would only have the total picture in terms  
5 of manpower and schedule for everybody when you have  
6 done all these pieces and then put them together.  
7 This is but one piece.

8 THE COMMISSIONER: O.K.

9 MR. STEEVES: Q You had  
10 an opinion as to the relative merits of the cross-  
11 delta or circum-delta and the interior route, and I  
12 understand that your own view is that the interior  
13 route is to be preferred to the other two. Am I  
14 right in that?

15 WITNESS TEMPLETON: Yes.

16 Q And I'm not sure I  
17 understood completely, your answer to Mr. Veale when  
18 he asked you why. But I take it it's set out to the  
19 extent that you were able to analyze it, on page  
20 13 and 14 of your evidence. Is that correct?

21 A Yes.

22 Q The latter part of --  
23 well, you say two things there, starting in the middle  
24 of the page:

25 "That the Foothills proposed pipeline in the  
26 delta must be constructed from snow or ice  
27 roads."

28 A Yes.

29 Q And the other thing is:  
30 "That the cross-delta route by CAGPL not be  
approved."



Templeton, Doyle, Hernandez  
Cross-Exam by Steeves

Then you go on and give your pros and cons for the cross-delta route. Have you yourself or anyone working under your supervision ever attempted an exhaustive analysis of the impact that the construction of an operation of a pipeline would have in each of those three areas.

A        No, I haven't and I  
don't think anybody else has.

Q Are you familiar with the work done by Bliss and Thompson in this area?

A Which work are you talking about?

Q I'm referring to --  
well, I guess you're not. It's a letter dated  
September 21, 1976, that's not that long ago. Have  
you seen that letter?

A No, I haven't.

THE COMMISSIONER: Well, Dr. Bliss told me when he gave evidence as part of the panel back in January that Thompson and he had carried out this analysis of negative and positive impacts, and he said then that he came out in favor of the interior route, and I think that's still his opinion. He simply put it in writing. That's all that he's done, and this letter has been marked as an exhibit and Miss Carriere can let you have it.

I can't understand --

M R STEEVES: I don't read it that way.

THE COMMISSIONER: Well then,



Templeton, Doyle, Hernandez  
Cross-Exam by Steeves

1 you tell me, because I don't quite understand those  
2 figures.

3 MR. STEEVES: Oh well, can  
4 I tell you this? First of all, the addition --

5 THE COMMISSIONER: If you  
6 get more points, does that mean it's good or bad?  
7 That's what is troubling me.

8 MR. STEEVES: Well, I think  
9 that's explained, is it not, by the first page which  
10 says --

11 THE COMMISSIONER: I still  
12 don't understand.

13 MR. STEEVES: --well, one  
14 little change to terrain or marine biology.

15 THE COMMISSIONER: Yes.

16 MR. STEEVES: 1 to 5% change,  
17 and thus no significance, so that if you had a total  
18 -- I'm sorry, if the whole score right down that  
19 column amongst those 30-odd items was 1, 1, 1, 1, 1,  
20 you would say, "That's where there's the least or  
21 most insignificant impact."

22 If you had a total score  
23 against -- I'm sorry, if you had a score of 5 against  
24 each of the items under some other column, that,  
25 as I would interpret the first page, would mean that  
26 in each of those items there was a severe change  
27 to terrain or marine biology, thus a highly signifi-  
28 cant impact. So if you take all the totals under  
29 each sub-heading and add them up, what I get is 54,  
30 for, around the delta; 57 across the delta; and 73





Templeton, Doyle, Hernandez  
Cross-Exam by Steeves

1 for the interior route.

2 WITNESS TEMPLETON: I think  
3 you said 54.

4 Q I know, but if you add  
5 it up, and please don't argue with my arithmetic.

6 A Oh.

7 Q There's an error in  
8 the arithmetic.

9 A Oh, I see.

10 THE COMMISSIONER: Oh, I see,  
11 he's in error, eh?

12 MR. STEEVES: Not by very  
13 much. No, that's a one point error of little  
14 significance. No, seriously --

15 THE COMMISSIONER: The circum-  
16 delta is --

17 MR. STEEVES: Here's where  
18 the errors are. Can I tell you?

19 THE COMMISSIONER: Sure.

20 MR. STEEVES: The general  
21 impact says under around the delta says 73 -- 53.  
22 It should read 73 if you add it up. The around the  
23 delta favorable impacts, the bottom figure is printed  
24 44, it should be 54.

25 A Yes, right, I've got it.

26 MR. STEEVES: O.K.

27 THE COMMISSIONER: So just  
28 so we understand each other, that means that the best  
29 place to build the pipeline, according to Bliss and  
30 Thompson, is along the coast and around the delta;



Templeton, Doyle, Hernandez  
Cross-Exam by Steeves

1 MR. STEEVES: Or across the delta.

2 THE COMMISSIONER: Secondly,  
3 along the coast and across the delta; and thirdly,  
4 interior route.

5 MR. STEEVES: Yes.

6 THE COMMISSIONER: Have you  
7 seen this, Mr. Templeton?

8 WITNESS TEMPLETON: No, I  
9 haven't seen it.

10 THE COMMISSIONER: Do you  
11 want to see it?

12 WITNESS TEMPLETON: Well, I'm  
13 reading it now, yes.

14 MR. STEEVES: Q Have you got  
15 a copy there?

16 A Yes. I have the --  
17 well, the question you asked me was, "Have you made  
18 an exhaustive study of this?"

19 And I would ask you, is  
20 this an exhaustive study? Because I don't think there  
21 are any exhaustive studies of the delta.

22 Q O.K., have you made a  
23 study of the particularities set out in this study  
24 done by Bliss and Thompson?

25 A Well, I haven't seen  
26 it until today, but I can comment on some of the  
27 problems of this, and of course the comparison of  
28 routes is a most --

29 Q No, I prefer to --  
30 can you answer my question? Have you made a study



Templeton, Doyle, Hernandez  
Cross-Exam by Steeves

1 comparable to this one about these two routes or  
2 three routes?

3 A I'd like to say what  
4 is the problem. I haven't made one like this because  
5 I don't believe in this system.

6 Q O.K., well your answer  
7 is you haven't.

8 A Well, I'd like to point  
9 out why. Under human impacts, people impact in a  
10 community is given a number, and song birds are  
11 also given a number, and they're not equal, and so  
12 that's the problem of adding up a bunch of numbers.  
13 So when you -- whether it's 44 or 54 is of little  
14 significance.

15 Q Where are song birds?

16 A Right here, it's under  
17 "Biological Impact".

18 THE COMMISSIONER: Just about  
19 caribou.

20 A That's the problem  
21 of adding up numbers. It gives you a nice answer but  
22 --

23 MR. STEEVES: You know one  
24 right across the board.

25 A Well, that's what  
26 you're doing. You could go down the whole thing  
27 and they're not comparable.

28 WITNESS DOYLE: The underlying  
29 assumption is that all criteria are equally weighted  
30 and thus, as Mr. Templeton has pointed out, song birds





Templeton, Doyle, Hernandez  
Cross-Exam by Steeves

1 in the total score are weighted just as heavily as  
2 people impacted in communities.

3 THE COMMISSIONER: You know,  
4 Mr. Steeves, Dr. Bliss referred to this study in  
5 January when he gave evidence and he conceded that  
6 it's not objective, that the subjective element  
7 enters into it when you weight the values to be  
8 assigned to each of these items in the beginning,  
9 and then you add them up and you get what appears  
10 to be a scientific and objective assessment but he  
11 conceded it wasn't. He said it's just a way of  
12 kind of getting a run at the thing.

13 MR. STEEVES: Oh, of course,  
14 I'm not going to wave this at you in argument and  
15 say, "There it is." But I'm sure Mr. Templeton  
16 isn't suggesting that what he set out on 13 and 14  
17 is an objective analysis either.

18 Q Are you?

19 WITNESS TEMPLETON: Well, I  
20 don't think there's any way of proving, it is subjective,  
21 there isn't any question about that, and so  
22 is every other opinion that's been given at this  
23 hearing regarding environmental matters. All the  
24 talk about scientific proof, in my opinion, is just  
25 so many words. There is no scientific proof because  
26 we do not have the information and the data to  
27 make it. So everything that's given is subjective,  
28 and certainly mine is, and I have read the material  
29 and came to this opinion. It's, as you say, my  
30 opinion.



Templeton, Doyle, Hernandez  
Cross-Exam by Steeves

1 Q And if you were explain-  
2 ing the differences of points of view to my dear old  
3 grandmother, I could say, "Your guess is as good as  
4 mine." Is that about it?

5 A Well, I'm not sure  
6 that I would weigh all the people, as Mr. Doyle has  
7 said you don't weigh song birds with people and I'm  
8 not sure I'd weigh all people alike either.

9 MR. STEEVES:

10 All right. Leave me  
11 aside and let's talk about Mr. Goudge. Thanks very  
12 much, Mr. Templeton. That's all the questions I have.  
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Templeton, Doyle, Hernandez

1 MR. GOUDGE: It's almost  
2 5:30. Perhaps it would be an appropriate time to stop  
3 for the day and we could begin with Mr. Hollingworth  
4 in the morning.

5 THE COMMISSIONER: Okay, and  
6 is Mr. Hemstock going to be with us tomorrow?

7 MR. GOUDGE: Yes. The program  
8 tomorrow, I suggest sir, would be this; we would begin  
9 at 9:30 with Mr. Butters. He has a plane to catch and  
10 his evidence is relatively short. It's been distributed  
11 by Mr. Sigler and Mr. Sigler asked that if possible,  
12 we put him on first and we then resume with the cross-  
13 examination of this panel and it will be followed by  
14 Mr. Hemstock dealing with contingency plans, fuel  
15 spills, their corridor evidence and then we'll con-  
16 clude the day with the Beaufort Delta presentation.

17 THE COMMISSIONER: I think  
18 Mr. Hemstock is here. Mr. Hemstock, you might just  
19 look over what Mr. Templeton said about the possibility  
20 of the coastal route being invaded in any event. It's  
21 getting late and I hope I'm making myself clear. He  
22 said that originally he felt that you should build this  
23 pipeline on the coastal route because the tendency of  
24 discoveries in the Beaufort Sea would likely lead to  
25 lines being built from the sea onto the shore, on the  
26 coast anyway. So, why go to the interior route when  
27 the coastal route was going to get messed up in due  
28 course, no matter what you did? So, he said I favor  
29 the coastal route.

Now, he says I have looked at



Templeton, Doyle, Hernandez

1 this thing again and I have noticed that Mr. Hemstock  
2 in his evidence, along with Mr. Williams in Volume 53--  
3 apparently you said something that indicated to Mr.  
4 Templeton, ah-hah, they won't necessarily bring lines  
5 from the Beaufort Sea into shore along the northern  
6 Yukon coast.

7 So, he said let's go the  
8 interior route. I hope this is all making sense. But  
9 it's all on pages thirteen to seventeen of Mr.  
10 Templeton's evidence and if you don't mind, Mr.  
11 Hemstock, you might just comment on that tomorrow.

12 MR. HEMSTOCK: I'll have a  
13 look at it, sir.

14 WITNESS TEMPLETON: Mr.  
15 Commissioner, could I--

16 THE COMMISSIONER: Yes, you  
17 explain what it meant.

18 WITNESS TEMPLETON: Only one  
19 point. I don't think when I gave my evidence that I  
20 said I preferred the coastal route. I think I said  
21 I preferred the interior route. The coastal was  
22 acceptable because of these other things.

23 THE COMMISSIONER: I understood  
24 that then. I understand it now. But I didn't express  
25 it very well. Okay, 9:30.

26 (MAP-RECOMMENDATIONS FOR SITE-SPECIFIC TERMS AND  
27 CONDITIONS FOR THE ARCTIC GAS PROPOSAL MARKED EXHIBIT  
28 834)

29 (MAP-RECOMMENDATIONS FOR SITE-SPECIFIC TERMS AND  
30 CONDITIONS FOR THE FOOTHILLS PROPOSAL MARKED EXHIBIT





Templeton, Doyle, Hernandez

(LETTER FROM PROFESSOR V. GEIST DATED MAY 25, 1976  
MARKED EXHIBIT 836)

(PREPARATION OF SITE-SPECIFIC RECOMMENDATIONS FOR THE  
PIPELINE PROPOSED BY CAGPL LIMITED AND FOOTHILLS PIPE  
LINES LIMITED MARKED EXHIBIT 827)

(WITNESSES ASIDE)

(PROCEEDINGS ADJOURNED TO OCTOBER 6, 1976)

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October 5, 1976 Yellowknife

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BORROWER'S NAME

347

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Vol. 193







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MACKENZIE VALLEY PIPELINE INQUIRY

Government  
Publication

IN THE MATTER OF APPLICATIONS BY EACH OF  
(a) CANADIAN ARCTIC GAS PIPELINE LIMITED FOR A  
RIGHT-OF-WAY THAT MIGHT BE GRANTED ACROSS  
CROWN LANDS WITHIN THE YUKON TERRITORY AND  
THE NORTHWEST TERRITORIES, and  
(b) FOOTHILLS PIPE LINES LTD. FOR A RIGHT-OF-WAY  
THAT MIGHT BE GRANTED ACROSS CROWN LANDS  
WITHIN THE NORTHWEST TERRITORIES  
FOR THE PURPOSE OF A PROPOSED MACKENZIE VALLEY PIPELINE

and

IN THE MATTER OF THE SOCIAL, ENVIRONMENTAL AND  
ECONOMIC IMPACT REGIONALLY OF THE CONSTRUCTION,  
OPERATION AND SUBSEQUENT ABANDONMENT OF THE ABOVE  
PROPOSED PIPELINE

(Before the Honourable Mr. Justice Berger, Commissioner)

Yellowknife, N.W.T.

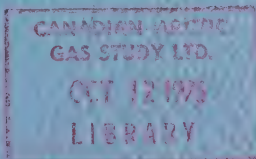
October 6, 1976.

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PROCEEDINGS AT INQUIRY

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Volume 194







APPEARANCES:

Mr. Ian G. Scott, Q.C.,  
Mr. Stephen T. Goudge,  
Mr. Alick Ryder, and  
Mr. Ian Roland, for Mackenzie Valley Pipeline  
Inquiry;

Mr. Pierre Genest, Q.C.,  
Mr. Jack Marshall,  
Mr. Darryl Carter,  
Mr. J.T. Steeves, and for Canadian Arctic Gas Pipe-  
Mr. Gerry Ziskrout, line Limited;

Mr. Reginald Gibbs, Q.C.,  
Mr. Alan Hollingworth,  
Mr. John W. Lutes, and for Foothills Pipe Lines Ltd.;  
Mr. Ian MacLachlan,  
Mr. Russell Anthony,  
Prof. Alastair Lucas and  
Mr. Garth Evans, for Canadian Arctic Resources  
Committee;

Mr. Glen W. Bell and  
Mr. Gerry Sutton, for Northwest Territories  
Indian Brotherhood, and  
Metis Association of the  
Northwest Territories;

Mr. John Bayly and  
Miss Lesley Lane, for Inuit Tapirisat of Canada,  
and The Committee for  
Original Peoples Entitle-  
ment;

Mr. Ron Veale and  
Mr. Allen Lueck, for The Council for the Yukon  
Indians;

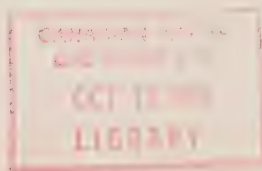
Mr. Carson Templeton, for Environment Protection  
Board;

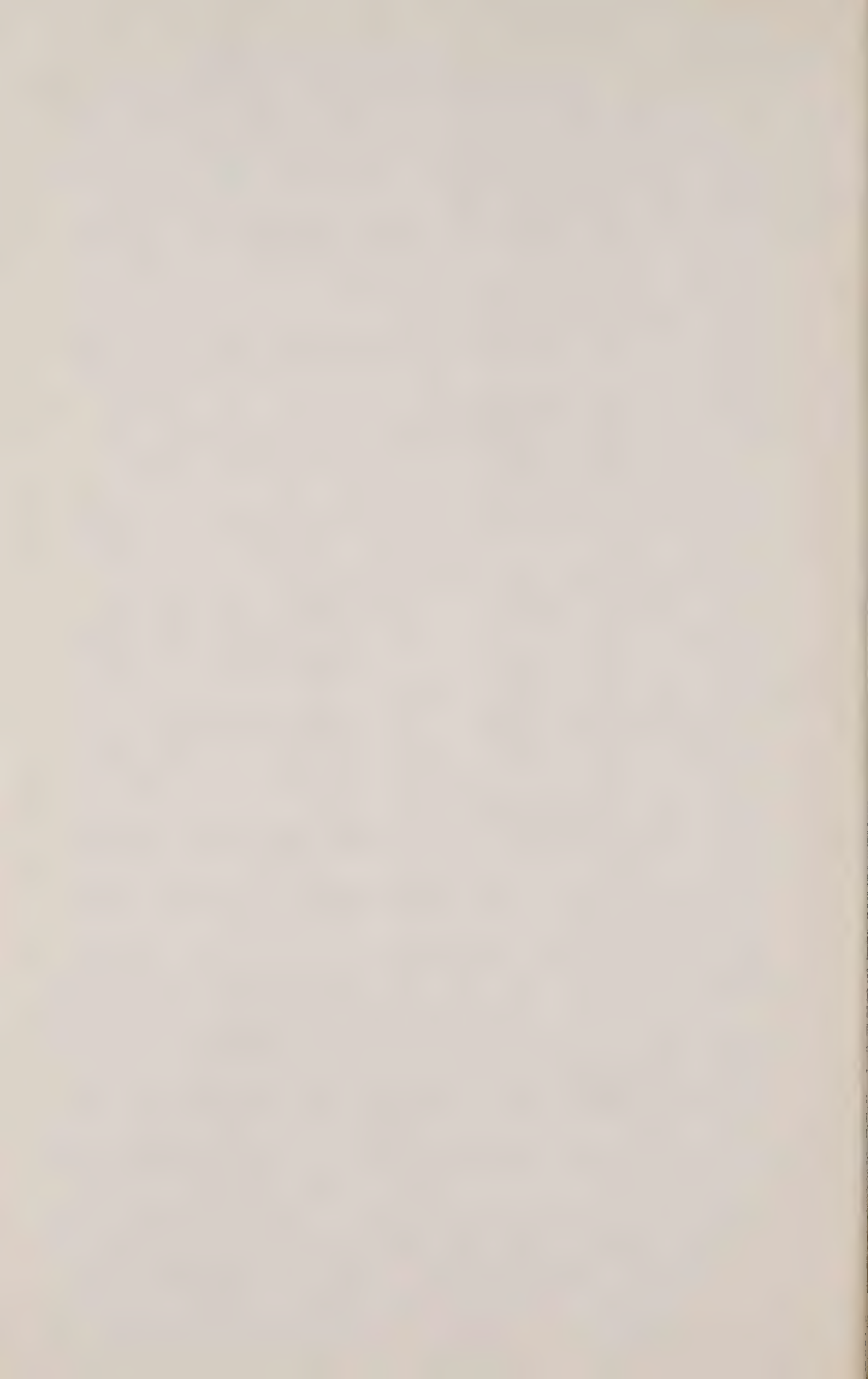
Mr. David H. Searle, Q.C.  
for Northwest Territories  
Chamber of Commerce;

Mr. Murray Sigler and for The Association of Munici-  
Mr. David Reesor, palities;

Mr. John Ballem, Q.C., for Producer Companies (Imperial,  
Shell & Gulf);

Mrs. Joanne MacQuarrie, for Mental Health Association  
of the Northwest Territor-  
ies.





I N D E XPage

## WITNESSES FOR N.W.T. ASSOCIATION OF MUNICIPALITIES:

Tom BUTTERS

- IN Chief 30265
- Cross-Examination by M r. Goudge 30272
- Re-Examination 30275

## WITNESSES FOR ENVIRONMENT PROTECTION BOARD:

Carson H. TEMPLETON

D.H. DOYLE

H. HERNANDEZ

- Cross-Examination by Mr. Hollingworth 30285
- Cross-Examination by Mr. Goudge 30326

## WITNESSES FOR CANADIAN ARCTIC GAS PIPELINE LIMITED:

Russell Alexander HEMSTOCK

- In Chief 30347
- Cross-Examination by Mr. Bayly 30371
- Cross-Examination by Mr. Veale 30384

## WITNESSES FOR M.V.P.I.:

George LIPSETT

Harvey D. WYLIE

- In Chief 30412
- Cross-Examination by Mr. Bayly 30424
- Cross-Examination by Mr. Veale 30434
- Cross-Examination by Mr. Hollingworth 30435
- Cross-Examination by Mr. Goudge 30440

## EXHIBITS:

- 838 Qualifications & Evidence of T. Butters 30411
- 839 Evidence of R.A. Hemstock 30411
- 840 Qualifications & Evidence of Messrs.  
Lipsett & Wylie 30447



T. Butters  
In Chief

Yellowknife, N.W.T.

October 6, 1976.

(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

MR. GOUDGE: We're ready to begin, sir. This morning we propose to start with Mr. Butters, called by the Association of Municipalities. Mr. Kingsmill of Mr. Sigler's firm, is here representing the Association of Municipalities this morning, and he's going to call Mr. Butters.

Mr. Kingsmill?

MR. KINGSMILL: Good morning, Mr. Chairman. Mr. Butters, will you take the stand, please?

TOM BUTTERS, sworn:

DIRECT EXAMINATION BY MR. KINGSMILL:

Q Mr. Butters, attached to your submission is a witness resume. I wonder if you could highlight that for us?

A Yes, I will, sir. Just before I do, though, I would like to say in reference to the oath I swore, it will be what I believe to be the truth, my testimony will be what I believe to be the truth.

Q We understand that.

A Obviously, some of the things that I provide here may not be the truth.

The resume was drawn up by Murray Sigler yesterday. There are a couple of omissions I notice now. My service for the R.C.M.P. -- R.C.A.F.



T. Butters  
In Chief

is not there, two years; and after my discharge and after going to university I was in Europe a year and travelled around Europe and in France, and the other general dates, I think, are fairly close.

Q At the present time you are a member of the Legislative Assembly for the Territories.

A Yes, that is correct, representing the Inuvik constituency at the present time.

Q And in addition you are the editor of the Inuvik newspaper.

A That is correct, sir, yes.

Q All right, you may proceed to read in your submission for the record.

A If I may just by way of preface point out that this document was requested of me by the N.W.T. Association of Municipalities. You will recollect, sir, that I have been in correspondence with you or your Commission counsel over the past two years and have indicated my own interest in appearing before your Inquiry, sir, and I wish to, before this time is over, have a short opportunity to make what would be my own presentation, as you have given me that opportunity. As I say, this is developed at the request of the N.W.T. Association of Municipalities. The parameters they put on me was that it have political, economic relationships and ramifications.

I then will begin to read





T. Butters  
In Chief

from the two-page opening remarks to the other material which comes from the material I provide on the Territorial -- in the Territorial Assembly.

The order-in-council on March 21, 1974, outlining the terms of reference of the Mackenzie Valley Pipeline Inquiry specifically directed the Inquiry's attention to the "social, environmental and economic impact regionally, and the specific environmental and social concerns."

That direction notwithstanding, the Inquiry must touch upon and in its normal course of fulfilling its commission, examine evidence dealing with the political impact regionally and Territorially, and political concerns.

The terms and conditions contained in the Privy Council document overlooked, as did the order-in-council authorizing the establishment of the Carrothers Commission, the reality that every vital and dynamic human community is in fact a series of relationships between three distinct yet interdependent communities -- political, social and economic communities of activity and interest.

The material that follows seeks to support and substantiate that view in the main through the medium of replies made by myself in response to the Commissioner of the N.W.T.'s opening address in the Council Chamber over the past five years, recognizing the presumption in trotting out dated positions, I hasten to add the material provided here with is edited through the removal of



T. Butters  
In Chief

extraneous material and rearrange chronologically to emphasize the very real political, economic concerns and effects that surround and attend the proposal to construct the Mackenzie Valley natural gas pipeline.

In limiting myself to extractions from replies to the Commissioner's address, I omitted one of the extremely important political-economic concepts raised frequently by myself over the past five years, and one which I have constantly striven to have recognized and adopted by both the Commissioner and his executive members, and the two Ministers of Indian Affairs & Northern Development over the past five years.

I refer to the concept of extraordinary funding for rapid-growth communities. Again, if I may depart from my text a bit, this file contains not a group of texts from material on extraordinary funding, but one letter and its appendages which I sent to the Minister of Indian Affairs, the Honourable Judd Buchanan on April 10, 1975, and I just point that out to indicate that the concern is real and it has been made known to the Ministers on many, many occasions.

This concept and the requirements for its implementation was specifically identified, debated and defined during the 45th Session of the N.W.T. Council on Thursday, June 24, 1971, during the first reading debate on my private member's bill, Bill No. 2545, "Growth Centres Ordinance".



T. Butters  
In Chief

On introducing that Bill I reiterated the Carrothers Commission postulate No. 2 which states:

"The competence of political institutions should be commensurate with the dimensions of the social and economic problems in the political units."

Deputy Commissioner John Parker, who served as a member of the Carrothers Commission, ten years ago speaking on Bill 2545 conceded -- and I quote his remarks:

"It seems to me, though, that since there is this need for the identification of special money, special assistance under these types of developmental circumstances, and since the control, if you will call it that, of the development itself, namely this resource development, is largely in federal hands, we need to take our case to the Federal Government and lay it before them. We have to have some idea of what kind of special money may be available, and in what form we are going to be able to put it into the Northwest Territories."





T. Butters  
In Chief

The upshot was that I withdrew my Growth Centres Bill as being premature and myself being optimistic that the Federal Government would recognize and eventually provide extraordinary funding to rapid growth communities. Unfortunately the concept of extraordinary funding was never really accepted by the Federal Government, even though successive ministers of the Federal Department of Indian Affairs and Northern Development, the Honourable John Chretien and the Honourable Judd Buchanan, were personally apprised of the need.

Such unwillingness to recognize and accept the need for extraordinary funding, I believe, has resulted in the costs for developing existing service infrastructure in many cases being passed on to N. W. T. municipalities and individual residents. I attribute in large measure the recent exorbitant increase in N. C. P. C. power rates to the unwillingness of the Federal Government to accept final responsibility for the developmental preparations in anticipated rapid growth communities.

More generally, the material extracted immediately following examines briefly:

- a) the evolution of the political community in the Northwest Territories as preceding economic development stimulated and financed it;
- b) fiscal parallels and problems similarly experienced by the first Council of the Northwest Territories between 1875 and 1888;
- c) the genesis of the Carrothers Commission;



T. Butters  
In Chief

- d) indications of the changed economic climate in the N. W. T. and the tempest of rising territorial and national expectations that followed the discovery of oil at Prudhoe Bay in 1969, and;
- e) the planning for the economic future of the territories.

The extracts are self-explanatory and are identified only by the date the remarks were delivered and the session number.

As noted above, the first excerpt is the exception in that it is extracted from remarks made at the 52nd Session of Council, a special two-day session convened March 22, 1974, to enable members to examine the proposed Federal Government amendment to the N. W. T. Act, which is our constitution, the constitution of the Northwest Territories.

The amendment provided for the establishment of a Council of the Northwest Territories comprised of fifteen members, all of whom were to be elected by the residents of the territories.

MR. KINGSMILL: Thank you, Mr. Butters. Before you proceed with your community hearings presentation, there may be questions on this submission. Mr. Goudge?

MR. GOUDGE:

Yes, sir. Mr. Butter has indicated earlier that he would like to proceed this way and it's certainly fine by the parties and I'm sure by yourself. Mr. Hollingworth, do you have any questions?



T. Butters  
Cross-Exam by Goudge

MR. HOLLINGWORTH: I have no questions.

MR. GOUDGE: Mr. Steeves?

MR. STEEVES: I have no questions.

MR. GOUDGE: Mr. Templeton?  
CROSS-EXAMINATION BY MR. GOUDGE: Q  
I have only one question, Mr. Butters, and it's in response to a matter you and I discussed earlier. You wish, I think, to comment upon an answer that was given in response to a question of Mr. Searle when he was before the Commission several weeks ago. Perhaps you could indicate to the Commissioner what that response was and what your comment is upon it.

WITNESS BUTTERS: Yes, thank you sir. I have not seen the transcript, sir, of that particular hearing. I happened to catch about fifteen minutes of Mr. Fraser's report of it and it seemed to me there was a question asked by Mr. Scott of Mr. Searle relative to money that had been approved by the Council to establish a committee to look into the attitudes or reactions of people, especially in the valley, relative to the Mackenzie Valley Pipeline.

If I recollect the interview, the answer was something to the effect that there were politicians on the committee and that's maybe suggesting politicians can't agree, but the reason that committee did not carry out the responsibility which it sought, because I sought it as Chairman of the committee with the concurrence of the membership was a political matter and that occurred in 1974 and you'll remember too



T. Butters  
Cross-Exam by Goudge

at that time and I imagine the same consideration occurred to you, that you would not really be moving into the valley until the politicians, the Federal politicians got out.

So, the time that we wish to travel, as you probably are aware the 7th Council ended on the 31st day of January, 1975 and from the time of that approval, we had a matter of months and the first ideal opportunity would have been when the spring hunt was over and people were back in the communities. But on examining the situation, we felt that to go into communities at a time of politicking was a mistake and as a result, we deferred consideration to the next time would be the fall and over the summer, we again examined the time left to us, left to the Council, now only six months say, and I think that our consideration was exactly the same as yours in your opening; was that the job that's worth doing is worth doing well. We're not going to get out on the trail and do a poor job and then come back with the report on the basis that it would be irresponsible to spend the money to do a week or two week hasty survey of the communities and then come back and make a report on it.

That was the reason the report was never--first of all, the terms were never carried out and no report was ever made. So, I don't know if that reply was communicated by Mr. Searle, as I say, I got the C. B. C. report of the meeting but that is what happened.

MR. COUDGE: Thank you, sir.





T. Butters

THE COMMISSIONER: Let's just say that I appreciate very much this brief you filed, Mr. Butters and I assure you that I will read the attachments. Since I hope to go home this weekend, I think they'll take me all the way from Yellowknife to Vancouver on the plane. That's a good place to get work done, I find. I might also say that without necessarily agreeing with your remarks on the obligation of the Commission to look into questions related to political evolution in the N. W. T., I did regard it as essential to read the Carrothers Report and I might tell you that Dr. Carrothers is an old friend of mine. He was a teacher of mine at law school and so I had dinner with him in Montreal last week where he lives now.

I thought that I would spend my time listening to him but I think he spent most of the evening listening to me. At any rate, I appreciate your raising this matter.



T. Butters  
Re-examination

1 RE-EXAMINATION BY MR. KINGSMILL:

2 Q

All right

3 Mr. Butters, you can proceed with your Community  
4 Hearing presentation please.

5 A As I mentioned sir,

6 there's been communication -- I have had communication  
7 with members of your staff over the past few years  
8 and have indicated my desire sometime to make a  
9 presentation. For a long time I envisaged a very  
10 lengthy presentation and over the past two years,  
11 I must say that it has changed radically to the  
12 point now, where I think it can be done in five  
13 minutes. I'll try and keep within that time.

14 The remarks are going to

15 deal with the area and I interpret from your comment  
16 on my paper, that you're not accepting as did Dr.  
17 Carrothers, the parameters that were laid on you by  
18 the federal government in respect to the various  
19 communities that you are examining, that the politi-  
20 cal one is also being examined. Many, many  
21 papers that have been presented here have dealt  
22 with the political --

23 THE COMMISSIONER: I'm

24 willing to listen, I'm just saying --

25 A -- and my remarks are

26 going to be on the political. What is disturbing  
27 and I mentioned this last summer in council. What  
28 has disturbed me, again we're talking about the  
29 political, is that the minister it seemed to me  
30 that the Commission Council at one time suggested



T. Butters  
Re-examination

1 that the minister should appear and I think the  
2 minister's reply was, Mr. Goudge is shaking his head,  
3 I thought the minister's reply was that this Inquiry  
4 is his Inquiry and he wouldn't appear, but I don't  
5 think that excuses the fact that there's much to be  
6 answered for by the politicians, by the federal  
7 politicians and I was just looking over some of the  
8 correspondence last night and <sup>you</sup> in your opening judg-  
9 ment, mentioned your right to subpoena. I don't  
10 know if you ever used that, but, you know, I have  
11 made recommendations to you before as everybody else  
12 has, but I would make a strong recommendation that  
13 that power should be used and that power should be  
14 used to bring in people who should answer questions  
15 that have pertinentcy to this Inquiry and the ends of  
16 this Inquiry and these people, with respect sir, I  
17 suggest, would be Digby Hunt. He's an administrator  
18 of long tenure with the Indian Affairs Depart-  
19 ment. He now no longer is a servant of the minister  
20 of that department. I think it would be very in-  
21 teresting to have him here. Another man I would  
22 suggest would be Commissioner Hodgson. Commissioner  
23 Hodgson should have --it is incautionable that this  
24 Inquiry should sit here and the man who has the re-  
25 sponsibility for the administration of these terri-  
26 tories is not here. Does not come here, and I think  
27 that your subpoena should be used there with respect  
28 sir. I think it should also be used and bring in  
29 the Deputy Commissioner because really it is two men  
30 that run the government in the Northwest Territories





202

T. Butters  
Re-examination

1 both senior appointies and the other aspect is that  
2 John Parker served ably and well on Dr. Carrothers  
3 commission and has much to contribute, and he should  
4 be here as well. The fourth man I think would be  
5 Ewin Cotterill, and I would think that these people  
6 because this as you said, this is a historic Inquiry.  
7 When we're long dead, I'm quite sure that people will  
8 be referring to this Inquiry and I would think it  
9 would be and I think you would feel remiss too, if  
10 you thought that scholars of a hundred years would  
11 say, why wasn't Hodgson there?

12 I would very much like to  
13 see them come and if they did come, I note that in  
14 my correspondence on July 27th, 1974, I wrote to  
15 Mr. Scott, and I think it was in the terms or the  
16 time allowable for interveners to advise that wish to  
17 intervene. I've advised that this letter will inform  
18 you that I intend to intervene, and I've never done  
19 so because time and money takes time, but if those  
20 four people did come, I would certainly like to be  
21 here to ask them questions.

22 The second thing I, you  
23 know, it seems to me that over the last year and a  
24 half, you have been a human wailing wall. You've  
25 heard all the ills and problems and just a whole  
26 catalogue of gripes. I think sometimes and I hope  
27 that this is one of your recommendations or I hope  
28 that it's even a recommendation before you go, be-  
29 cause I think that maybe -- maybe more of us could  
30 look more postively towards the future and has been



T. Butters  
Re-examination

1 the general attitude before. I don't think we've  
2 been as positive, I'm talking about northern people  
3 as we could be, as we should be. I think that possi-  
4 bly you could tell us before you go that for God's  
5 sake, sit down and start talking to one another.  
6 Don't talk to me. Don't talk to me, don't bring  
7 your problems here. Ninety-five percent of your  
8 problems can be resolved if you sit down and respect  
9 each other as individuals and human beings.



T. Butters  
Re-Examination

Don't ask me to solve them for you I think it has to be said because I think it's true that everybody is holding their own meeting in their own place with the press locked out, and government, which includes all the estates, is not really functioning so I hope you tell us to sit down together before the press and talk.

I remember about five years ago, I guess, it's always been my observation that people coming newly into the Territories are gifted for a very short space of time of a special insight. They see things which a long-term resident doesn't see. He becomes oblivious to, blinded to, and I like to be in the company of people who come newly into the Territories and listen to them because of the very, very wise things they say. I remember one of the "Edmonton Journal" reporters, Ralph Armstrong, one of his first articles -- and he preceded, I guess, Gord Sinclair -- one of his first articles was he said:

"People of the north don't talk to each other." It was kind of amusing, and I said, "By gosh, he's right," and that is even more true today. A terrible thing.

The third thing, if I can find it, is that -- now this is not a Court room, I don't think it is, and while you are a judge of the B.C. Supreme Court, it's my recollection reading your background that you spent many years as a politician. In fact, you spent a goodly portion of your adult



T. Butters  
Re-Examination

life as a politician, besides your legal background. It seems to me that you wouldn't have done that unless you had faith in the system that you had part of, unless you felt that what you were giving to your community as a politician was more important than you could give to your community as a lawyer.

So I really want to talk to the man who was once a politician, in that using the word recognizing that politicians are very, very important people. Politicians are the extension of the common man that makes up our community and our society.

Your Inquiry has been asked, as we heard in Inuvik on three occasions during your opening address, you mentioned to develop terms and conditions under which a pipeline would be constructed, something like that, "terms and conditions". It seems to me -- and this is where I speak to you as a politician or ex-politician -- really the law that the politician makes that is made in the House, the Assembly that goes 700 years back in time, are really terms and conditions, that really govern our lives in the total community.

It seems to me, too, that those terms and conditions had to be changed according to the needs of the people, according to the indications of the people, what those needs are, what protections they need, what they need to enhance their lifestyle or their environment. The politician must be receptive and must move quickly.





T. Butters  
Re-Examination

I think this is recognized because in any Chamber there are two aspects of these political terms and conditions, there are the legislative ones, the ordinances, the Acts, and the regulations. My understanding is that regulations exist so that you can even move more quickly than you can summon together a body of members to determine what should be deleted and what should be put on the books of law.

So really what I'm saying here in this long roundabout way, because I feel that the Federal Government has depreciated, has ignored the existence in the Territories of democracy and it continues to ignore it. I suggest to you, sir, that democracy has existed because it works. Nobody can explain why it works. If you tried to defend it on the basis of a new concept, you couldn't because it wouldn't appear to work, but it does work. I am wondering whether or not the terms and conditions shouldn't be such that must respond to need, the need of the moment, the need of unforeseen things. This Inquiry has pointed out that all of the plans of these brilliant engineers and planners, architects and designers get turned around, they have been changed as a result of discussion in this very hall. What is taking place here is people talking, the flow and ebb of concern, and that's why I say democracy works because it reflects and should react to and be responsible to those concerns and those concerns of people.



T. Butters  
Re-Examination

So I am wondering if there is some way in which your Inquiry might recognize the existence of a legitimate system of government in the Northwest Territories, a system of government that has been recognized by Canadians, constitutionally acceptable, based on historical precedent, responsive to the people because you can throw them out, throw the rascals out and increasingly it should be more effective in bringing about the wishes of the people. We now have two members on the Executive Council; they should be able to do a great deal.

I asked Mr. Goudge earlier whether or not the N.W.T. Act formed part of your -- and he pointed out to me that it is part of the public domain and you have read it and studied it, because I noticed in many papers that have been brought forward, only certain aspects -- snippets of the Act are brought forth.

But I think in an Act there is sustenance for an embryo of democratic -- of a democratic government.



T. Butters  
Re-examination

1 I think that--in fact, I think  
2 that we're beginning to see a little bit of hope but  
3 the Federal Government has refused to provide funding  
4 that will enable that organization to develop for  
5 itself, not to itself, a research body. Native  
6 organizations have all kinds of money. In fact, you  
7 have given more money to--in fact, there was some  
8 suggestions at some time we should approach you. This  
9 wasn't made with humour. This was made in dead  
10 seriousness and now I wish that we had done so, because  
11 we could indicate the idiocy of a situation where  
12 legislature has to approach an inquiry to get funds to  
13 carry out certain things.

14 But there is a little bit of  
15 hope in the future, I think. In the last session, the  
16 motion was passed and it was recommended that if some-  
17 body wished to make a presentation to yourself, to  
18 your Inquiry and to the N. E. B. and that has been done.  
19 Money has been developed to get together the people  
20 that would assist members to put together their wishes  
21 and thoughts. The only problem is that that was  
22 circumscribed because we could only use positions that  
23 had been debated and developed in public and we could  
24 develop no new positions, but I'm hopeful with that  
25 money and with that beginning, we can develop the  
26 expertise and get lawyers. We can't hire a lawyer now.  
27 We haven't got the funds to hire a lawyer or get a  
28 lawyer to look at the N. W. T. Act relative to the  
29 Canadian Constitution and determine what our real  
30 powers are.





T. Butters  
Re-examination

At present, I'm talking about your members of Council, if we had what we'd see as a constitutional anomaly or disagreement, where do we go? We go to the lawyers or the Department of Justice. With respect, I suggest the lawyers is a sophist, a professional sophist and his sophistry or the Department of Justice lawyer's sophistry is to support their master and I think that--what I'm just saying is you would look at the Act and with your political background, and with your legal background, seeing that a constitution, which may guarantee the rights of the northern people, individuals to govern their own destiny, to set their own terms and conditions.

THE COMMISSIONER: Thank you very much, Mr. Butters. I think you've had the full attention of everyone here and there are days when let me tell you, they don't appear to be giving their full attention. That's a tribute of your knowledge of this country and the sincerity and eloquence of your presentation. So, thank you sir.

WITNESS BUTTERS: Thank you.  
(WITNESS ASIDE)

THE COMMISSIONER: Maybe, Mr. Goudge, we could take a break.

MR. GOUDGE: By all means, sir.

THE COMMISSIONER: What's next?

MR. GOUDGE: The resumption of the cross-examination of Messrs. Templeton, Doyle and Hernandez.

THE COMMISSIONER: We'll just



1 stretch our legs for a moment. This isn't our coffee  
2 break. That is still to come.

3 (PROCEEDINGS ADJOURNED FOR A FEW MINUTES)  
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Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

MR. GOUDGE: Sir, we're prepared to resume with the cross-examination of this panel, and I think we've reached Mr. Hollingworth. Mr. Hollingworth?

CARSON H. TEMPLETON,

D.V. DOYLE,

H. HERNANDEZ, resumed:

CROSS-EXAMINATION BY MR. HOLLINGWORTH:

Q Mr. Templeton, the land use plan document that you've filed and spoke to yesterday makes a recommendation that Foothills should not be permitted to build its line -- the northern 50 miles of its line in the summer. Can you tell me what reading you did before coming to that conclusion and what your reasons are for that conclusion?

WITNESS TEMPLETON: I think the Foothills road and the recommendations was with regard to the road or pad, whatever you call it, was made in the context of a Mackenzie Valley zone and that zone would have no further activity that wasn't absolutely necessary, as far as I'm concerned, because of the tremendous pressures by all segments of the oil industry plus the ancillary services that go with it, and because it's a very, very sensitive area and I don't think we should ever lose sight of the fact that we only have one major delta in the -- in North America going into the Arctic Ocean, so that's the context of which -- that's the way I looked at it, and then I said,



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

"Can they build a pipeline in the wintertime so that they don't need a pad?"

I came to the conclusion that you could. It may not be what you want to do and it may not be as convenient, but I think you can. There are problems in the cold, as you have pointed out, and your witnesses have pointed out. There are certainly problems of welding in very cold temperatures and problems of brittle factors of metallurgy, but you're going to have those problems south of, I think your 50 miles takes you round to the Parsons Lake junction and you're going to have those problems south of there as well. So you're going to have to be able to live with those anyway. Certainly I think you made the point, or Mr. Kosten, I believe, made the point that the safety problems were greater in the dark and the cold, and I would agree; but once again I think those can be handled.

So I came to the conclusion that you can do it. I don't like to see that much gravel used if it isn't absolutely necessary. I think 1,200,000 or something in that vicinity and so I don't really see the difference between the first 50 miles and the second 50 miles, as far as the logistics problems are concerned, and we did quite a bit of work on winter roads at the outset. It was one of the first things that the Environment Protection Board did, was study winter roads because the whole concept was based -- of Canadian Arctic Gas -- was based on the use of winter roads, and if





Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

that concept didn't work, the whole project couldn't be done or couldn't be done without really damaging the environment by building it all summer; so we spent a great deal of time on collecting all the data on winter roads and compared a bibliography and worked out some test routes and monitored both the one of Canadian Arctic Gas at Norman Wells and Dr. Adam also looked at -- he didn't have much to do with it, but he looked at the one at Inuvik.

Is that a long enough answer?

Q I just doubled my estimate of my cross-examination time to Mr. Goudge.

Well, you've outlined your reasons, not succinctly, but you've outlined the reasons. The question was two-pronged and it dealt with the material that you've read. Now I take it that you must have read Mr. Kosten's evidence, which has been filed for reading later on this week. Is that what you refer to when you speak of Mr. Kosten's reasons; or have you read any --

A No, Mr. Kosten was here before some time ago, some months ago, and I've just read this morning, he gave me this yesterday and I didn't realize it was on this particular subject and I glanced at it when Mr. Butters was talking so I don't really know it, but I had heard, I guess, through the Energy Board that you were going to build that road and that was why I suggested it should not be done.

Q Well, you're not



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

suggesting that it wasn't announced to this Inquiry?  
This proposal.

A Well, I have a very  
difficult time keeping track of what is done at the  
Inquiry because I don't get all of the exhibits.

Q Well, are you aware of  
any proposals that have been put forward for a road  
from Inuvik to Tuktoyaktuk, a permanent road?

A Yes.

Q And I take it, then,  
that you're opposed to that as well.

A Yes.

Q For the same reasons.

A Yes.

Q And in saying that  
Foothills is capable of doing this work in the winter,  
you're going on your experiences with the Environmental  
Protection Board, and the research that you did on  
snow roads.

A And my general exper-  
ience.

Q And your general exper-  
ience.

A Yes.

Q Does your general  
experience encompass winter construction of pipelines?

A Not too extensively,  
no, but there have been TransCanada Pipeline has  
built in Northern Ontario pipelines in the winter,  
and, --



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

1 Q Were you involved with  
2 that construction?

3 A No, but I can see what  
4 they do and --

5 Q Were you out on the  
6 construction project when that was being put in?

7 A No, but it runs from  
8 Winnipeg easterly and we have spent a fair amount --  
9 well, not a lot of time but we observed this between  
10 east of Winnipeg because the Environment Protection  
11 Board one time did try to use that as -- observe the  
12 TransCanada Pipeline looping project to see what  
13 the effects where and the Board was doing it in the  
14 summertime. But I don't -- I think -- they didn't do  
15 too much in the wintertime but in Manitoba we --  
16 conditions, the temperature conditions aren't that  
17 unlike this area, and of course the pipelines in  
18 Manitoba we deal with are much smaller and much  
19 smaller wall thickness. So that the welding problems  
20 aren't nearly as great.

21 Q Mr. Templeton, have  
22 you in your professional capacity as an engineer  
23 ever been involved in any way with the construction  
24 of a pipeline in the winter anywhere?

25 A I suppose you'd have  
26 to -- what do you mean by "construction"? I think you  
27 have to put in, you know for example, I'm having  
28 a difficult time trying to analyze what you mean by  
29 "construction". A few years ago or perhaps ten years  
30 ago a pipeline between the TransCanada Pipeline and





Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

1 the city gate in Winnipeg broke, ruptured over quite  
2 a long time, and this took place in the wintertime,  
3 under our supervision. I don't know whether you  
4 call that a construction or not, but it had to be  
5 welded, it had to be dug and put in place, and there  
6 are repairs, you know, being made in the network in  
7 Manitoba quite regularly, and there are new industries  
8 being put in. Sometimes they have to go and put them  
9 in in the wintertime, the services and extensions to  
10 lines, this sort of thing.  
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Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

Q I'm talking about your personal experiences.

A Well my personal experience is, that, our company which I started and I don't do that much now, but, was to supervise on behalf of the Manitoba Public Utility Board, all gas installations in Manitoba. We've been doing that since 1959 I think it is. The gas company puts them in with contractors and we -- we monitor it on behalf of the Manitoba Public Utility Board -- Public Utilities Board which has the regulatory authority in Manitoba and so, we make spot checks on all installations in Manitoba.

Q During the installation?

A Well not only during the installation, but any repairs and extensions and primarily to do with safety.

Q And is that work apart from the ruptured line from Trans-Canada to the Winnipeg city gate. Is that work done in the winter or in the summer?

A Well that particular thing was -- was done in the winter.

Q And the other ones?

A You do the ruptures when they occur not -- you know.

Q Precisely? But what about if they're just scheduling some first time installation, that's surely done in the summer?

A Oh yes, of course you



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

1 do anything in the summer that you could do in the  
2 summer.

3 Q So then we can come  
4 back to this main question. Your experience with  
5 the installation or the construction of pipelines in  
6 Canada in the winter, is restricted to the supervision  
7 of the repair of a ruptured line from the Trans Canada  
8 mainline to the Winnipeg City Gate.

9 A No. I don't -- do  
10 you want me to tell you again. That was -- you gave  
11 me one example. You said, have you ever had any,  
12 I believe you said, and I was saying that that was  
13 an example. Now there are all of the things that  
14 are going on by a utility company all the time.

15 THE COMMISSIONER: I thought  
16 Mr. Templeton, that you were on the Canol Project.  
17 I thought Mr. Hemstock and you built the Canol Pipe-  
18 line?

19 A I don't admit that Mr.  
20 Hemstock's contribution was very much. I did work  
21 on the Canol Project but, my role on that was not in  
22 the conventional pipelining operation. I worked on  
23 the tank farm at Norman Wells and then the road and  
24 the pipe is small, it was only 4 inch and we just  
25 quickly welded up and strung along the side of the  
26 road. So it wasn't really a pipelining operation as  
27 such. Not in relation to a, say a 48 inch buried  
28 pipeline.

29 THE COMMISSIONER: Oh, I  
30 know, but the interesting thing is, that if you read



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

about those days and if you see the film that we saw here about a year ago, prepared by Mr. Finney, it was -- it was announced as a project of similar magnitude to the Arctic Gas and Foothills proposals, winning the war and so on, but anyway, I'm well aware that it was only a 4 inch line and I 've -- I went along the right-of-way but it was taken up about 30 years ago, so it must be sitting in a junkyard somewhere.

MR. HOLLINGWORTH: Q Mr.

Templeton, do I understand correctly, that you're here in your personal capacity as Carson Templeton Esquire and you're not here on behalf of the Environmental Protection Board, or anything else?

A That's correct. Right.

Q Fine. Now, Mr. Doyle, you're a mechanical engineer by training are you?

WITNESS DOYLE: A Yes.

Q And you worked at various industrial engineering positions in Ireland and Norway?

A Yes.

Q What were they?

A Perhaps I -- is there a full resume there sir?

Q No, there is not.

A Well that must be an oversight on my part.

WITNESS HERNANDEZ: I think it's Section 5 in that document you have there.





Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

1 THE COMMISSIONER: Yes I

2 think there is.

3 MR. HOLLINGWORTH: All right,  
4 it still requires some explanation. You were with  
5 the Department of Mechanical Engineering at University  
6 College in Dublin?

7 WITNESS DOYLE: A Yes sir.

8 Q And that was as an  
9 instructor?

10 A Yes.

11 Q And then you were a  
12 production engineer with Jo-Bu Ver Sted in Oslo,  
13 Norway?

14 A That's correct.

15 Q And what sort of work  
16 were they engaged in?

17 A They were engaged in  
18 the manufacture of equipment for the pulp and paper  
19 industry in Norway.

20 Q This is the machinery  
21 that's used by the pulp and paper industry?

22 A Yes, mostly in their  
23 harvesting, in the forest operations, such as chippers,  
24 debarkers and that sort of equipment.

25 Q I see. And Geepacks  
26 Limited in Dublin was your next assignment?

27 A Yes sir.

28 Q You were there during --  
29 sometime during 1964 it seems?

30 A Yes, I started there if



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

1 my recollection is correct in about February and I  
2 left in November.

3 Q And what sort of work  
4 are they engaged in?

5 A They're in the plastics  
6 industry and the manufacture of plastic film, pack-  
7 aging materials and I was responsible for production  
8 there. It was a operation that was a 24 hour day  
9 operations, so there was a production engineer re-  
10 sponsible for each shift, you might say and so I  
11 had the responsibility for the total plant as it  
12 functioned on a particular shift.

13 Q And then you were with  
14 Unidare Ireland Limited in Dublin?

15 A Yes sir.

16 Q And what did that in-  
17 volve?

18 A Unidare is a multi-  
19 faceted heavy industry doing everything from the  
20 production of aluminum to a lot of -- right through  
21 to transmission line cables, the manufacture of mater-  
22 ials for the electrical industry. My capacity there  
23 was mostly within the cable manufacturing section of  
24 that large industry.

25 Q And then when you came  
26 to Canada before joining Mr. Templeton's firm, you  
27 were with Building Products of Canada Limited and I  
understand they make wall board of reprocessed news-  
paper and gypsum and things like that.

A In part sir, yes.



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

Initially when I was with them, I was the plant engineer for Fiberboard Manufacturing Plant. I then became plant engineer for a paper mill that they have in Winnipeg and later on assumed responsibility for all the plant engineering when there was a reorganization consolidating a paper mill, a board mill, a roofing mill and a sheeting mill and the production of rock shield for pipeline construction.

Q So that the capital projects you've been involved with would be what?

A In industry?

Q Yes.

A There were many and varied sir. They were from the modernization. We completely rebuilt and refurbished including the building of the fiberboard mill while I was there. We made out a program without interrupting production. We tore the mill down and rebuilt the building and then we went through the total flow system for the stock flow system and we refurbished that, putting in new equipment, new pulpers, pumping systems, water pollution systems, forming machines and a dryer -- a dryer tunnel where the product is dried. That was one and while I was with the paper mill, we did some major updating on those mills. That company just prior to my joining it, had been acquired by Imperial Oil, so it had been a small private company and had of course suffered from a lack of capital investment, so at that time there was a large influx of capital investment and modernization.





Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

1 Q Is it fair to say that  
2 you haven't been an engineer on a capital intensive  
3 project such as this proposed pipeline?

4 A No, sir.

5 Q And you have no experience  
6 in the pipeline industry?

7 A No, sir.

8 Q Now, just reviewing this  
9 scheme for the agency that you prepared for the  
10 Department of the Environment. You start off by  
11 suggesting that there be a two year lead time before  
12 this agency review any project. Are you suggesting  
13 that the agency should be created now, starting now?

14 A I didn't suggest that  
15 there be a two year lead time before the agency review  
16 anything in the project. I said that there should be  
17 a six month period to put together a core group to sort  
18 out the modus operandi liaison, et cetera. Thereafter,  
19 I said that there should be a nine month period or  
20 allowing a nine month period to pull together all the  
21 regulations and stipulations that would govern the  
22 pipeline and at that point, which is a total of fifteen  
23 months, rather than two years, there is a--you're then  
24 in a position to review submissions of preliminary  
25 designs and final designs.

26 Q That's takes a further  
27 four months?

28 A No, I don't think I said  
29 four months.

30 Q I'm sorry. After your



15 fifteen months, you've got a four month period for  
16 overall project review and approval in principle?  
17 I'm looking at chart 6A.

18 A That particular time  
19 slot is not sequential with the others. It's integrated  
20 within them.

21 Q It's integrated within  
22 the fifteen months you've previously mentioned?

23 A Yes, it may well be.

24 Q Well, do you have 6A  
25 in front of you.

26 A Chart?

27 Q Yes.

28 A Could you give me the  
29 page number please?

30 Q Facing page 30.

31 A Yes.

32 Q Now, you have years  
33 across the top and the first is year minus two and  
34 then year minus one.

35 A Yes.

36 Q Now, just to go back a  
37 minute; are you proposing that this agency be set  
38 up starting now and that this year minus two start  
39 running as of this date?

40 A The way I looked at this  
41 sir, to answer your question fairly, is I wasn't--I  
42 didn't get into the problem of being hung up by time.  
43 I didn't put years 1978 or '9 anywhere. I said given  
44 the schedules of Foothills and CAGPL to commence their



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

field activities in let me call it just year one and looked at the construction schedule going ahead from there and then backing up from there with a management strategy, I come to a year minus and a year minus two. I have no dates on those. I'm saying--in the report I said if you put a year context on it and you anticipate getting into doing construction by 1980 then, of course, the twenty-four months that I've indicated here in total required means that there is some sense of urgency about getting on with the establishment of a single agency, if indeed that is the road one goes.

Q Well, as I understand it, you require this lead time before even surveying is done.

A Yes, I'm suggesting there in that same figure on the very top of the page, the first item is called location surveys. Now, the project schedules, looking at figure 6A, which is for CAGPL, indicates that surveys would commence in June of year one. I'm saying that before those surveys actually occur, there are a number of activities which the pipeline company will, of course, go through before they set out their contract for surveying.

The last thing, of course, they will do will be mobilize the survey crew. Prior to that, they'll have tenders prepared on bid; they'll evaluate and award a contract and prior to that, of course, they'll prepare their specifications for carrying out the surveys and I've indicated by a white

# Introduction

The purpose of this study is to investigate the effects of the proposed system on the performance of the participants. The study was conducted in a controlled environment, and the results are presented in the following sections. The first section describes the experimental design, including the participants, the tasks, and the measures of performance. The second section presents the results of the study, and the third section discusses the implications of the findings. The study was conducted in a controlled environment, and the results are presented in the following sections. The first section describes the experimental design, including the participants, the tasks, and the measures of performance. The second section presents the results of the study, and the third section discusses the implications of the findings.

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Fingleton, Doyle, Hernandez  
Cross-Exam by Hollingworth

triangle in there that when those specifications are prepared, there should be, from the point of view of environmental control, there should be a review of those specifications.

Q All right. Well, now the mobilization occurs in June of year one and that's two and a half years after the beginning of your chart.

A Yes, sir.

Q And the beginning of your chart is the dates that the agency is set up.

A Yes, sir.

Q So, that if it went from now, this very point in time, then you'd be sometime into 1979, the spring of 1979 before mobilization of the survey crews could begin?

A That assumes that you followed the multi-phased management strategy that I indicated at the end of the report.

Q Using your approach.

A But let me just point something out, sir. One of the requirements, one of the time factors in here is the preparation of stipulations. Now, someone yesterday pointed out that, of course, this hearing will produce many of the rules and regulations to govern the pipeline. So, that effort, in itself, will reduce perhaps the total effort required. Also, I'm aware that a number of people within government are, of course, focusing on the problem of controls for this pipeline and some of that effort is ongoing at the moment.





Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

1 So, a management strategy must  
2 be updated and revised in the context of where you  
3 are currently at. So, for me to say you need a full  
4 two and a half years, was within the context of the  
5 situation as it appeared to me at the time I did this  
6 study. Well, now it's sometime later and you're getting  
7 toward the end of these hearings, so part of that time  
8 has--some time has passed but some of the effort has  
9 been undertaken.

10 So, two and a half years isn't  
11 entirely valid today.

12 Q You're saying, if I could  
13 put it fairly, that the lead time for your agency to  
14 get itself together needn't be as long now because  
15 there has been work done, propounding regulations  
16 and so forth.

17 A That's correct.

18 Q I see. Going back a  
19 moment, I believe you said the overall project review  
20 was in the first fifteen months, as you thought.

21 A I said that the perspective  
22 I took on this and what I've indicated in the report  
23 is that there may well be a requirement for the agency  
24 to look at the total project. So, I've really just  
25 indicated that there may be this requirement for an  
26 overall project review.

27 Q So, you stuck that into  
28 your chart as an extra on top of the first fifteen  
29 months?

30 A No, it's within. If you



1 looked at the manpower tables at the end, you would see  
2 that there isn't a box in there for any overall project  
3 review. It's really just to show that this is something  
4 that may be required and it may be waived.

5 Q Well, all I'm doing is  
6 looking at the chart and I see an empty space under  
7 year minus two, under twelve full months and I see an  
8 empty space under the first five months of year minus  
9 one. That's seventeen months and then you have overall  
10 project review occupying a further four months.

11 A Umm-hmm.

12 Q Now, is the chart wrong?

13 A No, sir. If you're  
14 setting up an agency, I'd suggest that you don't have  
15 to do every little activity in a sequential order.  
16 One activity doesn't have to be completed when another  
17 one is undertaken. For example, if one was in the  
18 area of developing site-specific or finalizing site-  
19 specific controls, then, of course, you could be  
20 undertaking any overall reviews at the time that that's  
21 going on.

22 So, the implication of such  
23 a review really only reflects itself in staffing and  
24 manpower, not in overall timing.



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

1 Q I'm not sure I under-  
2 stand that yet, Mr. Doyle. It's still early in the  
3 day. You've got this chart and as far as I can see,  
4 there is no preliminary activity undertaken with  
5 respect to preliminary design before the end of 20  
6 months after the creation of this agency. I'm just  
7 looking at the chart and taking it at its face value.

8 THE COMMISSIONER: Is that  
9 not so under the chart? That's all.

10 A From the information that  
11 we have on the project is all taken from the point of  
12 construction commencing. We don't have any information  
13 that I have seen before this Inquiry as to what the  
14 level of engineering planning would be before these  
15 field activities occur. So I take the commencement of  
16 field activities as given, as defined by the applicants,  
17 and I back up from there first through the pre-  
18 construction activities, the planning function, and  
19 then from there in terms of manpower I take the agency  
20 perspective, sir, and say, "Well, you've got to put  
21 stipulations together, that takes time." Hence the  
22 chart is backed up to year minus 1 for the sake of  
23 consistency, using nomenclature. If it would have  
24 made you any happier we could have started the chart  
25 at June of year minus 1. You got some surplus space  
26 there that seems to be bothering you a lot.

27 MR. HOLLINGWORTH:

Q Well, I understood that  
28 the empty space prior to that, so that the agency could  
29 get itself together and get its house in order.

30 A That's how it --





Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

1 Q That's what the text  
2 says, isn't it?

3 A That is a strategy  
4 which one could follow in establishing the agency.

5 Q You're saying that that  
6 time could be compressed?

7 A Yes.

8 Q Now, in arriving at this  
9 scheme, you looked only at the construction plans  
10 as originally filed by both Foothills and Arctic  
11 Gas, is that correct?

12 A That's correct, yes.

13 Q You didn't look at any  
14 updates to those construction schedule that you  
15 compiled from time to time?

16 A I looked at the material  
17 as of and when this study was undertaken, which was  
18 January of 1976, so any subsequent updates have not  
19 of course been taken into account. As I indicated  
20 in here, the material that I had on Foothills at that  
21 time was the -- appeared to me to be of a preliminary  
22 nature.

23 Q Yes, and I plan to  
24 deal with that in a moment. But the funding for this  
25 came from the Department of the Environment, did it?

26 A That's correct.

27 Q You weren't relying  
28 on limited funds still left to the Environmental  
29 Protection Board to do any of this work.

30 A This had nothing at all



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

to do with the Environmental Protection Board.

WITNESS TEMPLETON: I don't really think that's proper to even suggest a thing like that. You're saying we're going to take -- we're implying that we're going to take some funds from Canadian Arctic Gas and use it for -- I think that's--

Q Perhaps, Mr. Templeton, it would be better put if I said you were relying on any expertise of the Environmental Protection Board at that particular point in time. Does that satisfy you?

A Well, the Environment Protection Board was folded up at that time.

Q In January of 1976?

A Yes.

Q Now, in arriving at the scheme, Mr. Doyle, did you take into account normal engineering practice, or normal pipelining practice, or did you consider this solely from the point of view of environmental monitoring?

WITNESS DOYLE: Could you elaborate a little, Mr. Hollingworth?

Q Well, you've outlined some fairly detailed procedures on how certain things would be done.

A Yes.

Q For instance, you say on page 29 that -- I'll just refer to that --

"Hence we anticipate that the successful  
, contractor would mobilize his forces, then



Templeton, ~~Doyle~~, Hernandez  
Cross-Exam by Hollingworth

1 receive the detailed designs and specifications  
2 to proceed with the job."

3 Did you take into account whether a pipeline contrac-  
4 tor would be prepared to do such a thing?

5 A What I did here, sir,  
6 was say there are two ways to look at these preliminary  
7 activities. I think I've indicated, if I referred to  
8 say figure 5-B on the bottom of the figure that's facing  
9 page 21, I've indicated five activities that are part  
10 of the project planning process. Are you with me?

11 Q Yes.

12 A Now, in trying to put  
13 in a schedule, I wanted to take the tightest  
14 possible schedule that seemed reasonable at the time  
15 so rather than in some cases -- rather than lay out  
16 those planning activities sequential to each other,  
17 I really overlapped some of them one upon the other  
18 in some cases. For example, I think I talked yesterday  
19 in figure 5-A of wharfesites indicated by an arrow 1  
20 facing page 19 where I said that the preparatory  
21 investigations and final design would be two time-  
22 consuming events, but at the same time that they  
23 were going on, in order to cut the overall time  
24 requirements to a minimum the specification preparation  
25 -- the bidding and tendering of the job and the actual  
26 mobilization of the contractor to carry out that  
27 wharf construction -- could be going on at the very  
28 same time so that indeed the time requirement would be  
29 kept to a very minimum. So that I haven't sort of  
30 extended things as much as possible. What I've done is



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

endeavored to shorten them up as much as possible.

Q Well, in so doing you haven't taken into account whether a pipeline contractor would indeed be prepared to do such a thing.

A No sir.

Q No. You didn't go out and check with the pipeline contractors as to whether he'd be prepared to mobilize his forces before he saw the final design.

A If he's doing the job on a cost plus basis, there he's supplying machinery, manpower to carryout a job and he's going to get paid for supplying those, and he really doesn't care what he's told to build. He's just supplying the resources to carry the job out.

Q But this again is another assumption you've made.

A Yes, I made that assumption so as to keep the time schedule to a minimum.

Q Just while we have a pause here, Mr. Templeton, let me go back and say that I certainly want to apologize to you if I suggested at all that the E.P.B. would have acted improperly in its application of funds. If I conveyed such a thought, I certainly didn't intend to and just let me say that I'm sure, quite sure in my mind that the E.P.B. did no such thing.

WITNESS TEMPLETON: Thank you.

Q Going on then. On page





Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

1 4-5 of your submission, Mr. Doyle, you're talking  
2 about the initial creation of the agency and you  
3 start off with a core group of eight persons to  
4 establish broad policies, objectives and procedures.  
5 Where do you visualize these people coming from?

6 WITNESS DOYLE: I didn't  
7 indicate in the report where they would come from,  
8 Mr. Hollingworth. Really that question wouldn't be  
9 answered until you decided indeed that you would have  
10 an agency and who would participate in such an  
11 agency. Obviously at that point you would have defined  
12 where you'd be drawing such people from.



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

Q Well, you have visualized industry participating in the agency, for instance.

A I haven't visualized industry in the context of the pipeline company, if that's what you mean.

Q That's what I meant.

A No, sir. I haven't visualized that, neither have I examined it and said whether it's desirable or undesirable. I didn't comment at all.

Q Excuse me. In response to Mr. Steeves yesterday, I understood you to say that you would get the agency together, promulgate some regulations; and then say to the pipeline company, here they are, now put in your final design based on these regulations. Did I understand you correctly?

A That's correct, yes.

Q And I certainly took that to mean that there would be no input by the pipeline industry whatever until there was a fait accompli on their plate.

A No, when you say input versus representation, I think they're two very different things. I've indicated that the core group in establishing policy would have to work out with the pipeline company. In fact, communications mechanisms because I've indicated that the pipeline company may well want to adjust its schedules in the light of the requirements that it will have to meet.

So, indeed I see considerable



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

liaison between the pipeline company and the agency as it's being formed.

Q All right. But you haven't considered what the experience or particular expertise of the eight core people would be at this time?

A No, I think my sole comment was that they would--to be mission oriented about such a task, you would need people with considerable amount of management expertise and indeed I indicated that these people aren't readily available because they're also probably carrying a considerable work load in whatever their current capacity is.

Q What about the nine senior staff who would join the core people later?

A Well, I've indicated that they would have to be representative of the major discipline areas and disciplines in which these regulations are being brought together.

Q But you have no idea as to where they might come from, particularly from government say or from industry, or would it be a combination?

A Well, I have indicated, sir, that there is a tremendous or there is a growing number of people who have gained tremendous familiarity with this project and, of course, if one could draw upon such a group of people, you would save yourself from a scheduling point of view the time required to change and orient people. So, from a strategy point of





Completion, Boyle, Hollingworth  
Cross-Exam by Hollingworth

view it would be excellent to be able to draw upon such a source of people.

Q What about the forty inspectors who come along next?

A Well, they don't come along next. I think next comes along the people required for design review.

Q Well, no matter who comes, what about the forty inspectors?

A What would you like me to tell you about them? Some of the qualities--some of the questions I've been asked by people which outline the qualities of these inspectors--when I indicated by discussing figure 7, I felt that some of the expertise of these inspectors would need to draw upon would make them equivalent to God; the decisions they might be confronted with if there weren't--

Q That's what troubles me.

A --if there weren't this preliminary review and design. Indeed inspecting such a diverse array of activities in the field with all their environmental implications, to me indicates the necessity of having these preliminary design reviews so that indeed the inspectors will be able to go out and inspect that the work is being carried out in the fashion that had been planned. I further indicated that the inspectors may, because they're going to be ordinary people, with various specialties of their own, that they may well need a group of



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

expertise possibly located at sort of regional centers paralleling the pipeline organization. For example, if there was a pipeline regional office centered at Norman Wells, then I could well see that the agency might have, through its Norman Well office, the capability of pulling in particular expertise if there was some problem of local concerns; that he could go out and assist the inspector in examining such a problem.

Q All right. Now, getting back to this question of input by industry, you say on page 26 at the top,

"The preparation of stipulations, however, is not something that can be done overnight. It will require a co-ordinated effort by all those currently involved in a legislative or advisory role".

I understand those in the legislative role. Who are the people you visualize in the advisory role?

A I think the major element there, of course, can be the outcome of this Inquiry. As I envisage the report which the Commissioner will submit to the Minister of Indian Affairs, it will be the Inquiry's recommendations to him. So this, in essence, is advice to the Minister. So, this is a major input.

Q What about industry input? Do you foresee that in that slot too?

A I wasn't exhaustive in



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

1 defining what all these particular inputs would be.  
2  
3 My main focus was to look at the timing, key activities  
4 and numbers of people. I didn't get into that in  
5 great detail. Of course, there is from a practical  
6 management standpoint, you've got to confer with the  
7 people that you're going to regulate.

8 Q Some of the activities  
9 you plan to monitor on the table 1 that starts at  
10 page 40 and goes over the next four pages, is that an  
11 exhaustive list or is that a partial list?

12 A That's a partial list,  
13 sir.

14 Q Partial list. You talk  
15 about activity going on simultaneously on four spreads  
16 as far as construction goes and four other spreads  
17 as far as preparatory work is concerned.

18 A Yes, sir.

19 Q Do you feel that forty  
20 inspectors will be sufficient to cover all these  
21 activities at eight different locations?

22 A I indicated at the very  
23 start of my presentation that in order to produce an  
24 output in terms of numbers of people, you must define  
25 a level of control. I indicated yesterday in questioning  
26 that for each interest group, they well have different  
27 levels of control. The final scale of an agency will  
28 depend on a decision being made as to what level of  
29 control indeed ought to be exercised on the project.

30 So, what I have done here  
31 and what we have done is by no means the last word in



terms of level of control. In order to get an output, you must define some level of control and indeed we did this drawing upon the work of the Environment Protection Board.

Q In light of the updates to construction schedules, which both applicants are putting out from time to time, do you plan to update this report to the Department of the Environment from time to time?

A I have no arrangement with the Department of the Environment to carry on this work.

Q Have you suggested to them it might be a good idea?

A In the normal course of events, I have talked to people that I have done this work for and discussed their current problems with them but we have no undertaking to update this work.

Q You haven't suggested it to them?

A I haven't suggested it specifically, sir, no.

Q Has anyone at the Department of the Environment suggested to you that it might be a good idea to consider?

A In the course of normal chat, everyone has brilliant ideas from time to time but invariably we discuss funding difficulties and priorities and, you know, there the buck rests.





Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

Q Notwithstanding the  
funding difficulties, has it ever been suggested to  
you that it might be a good idea to update this from  
time to time?



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

A I have on my own initiative suggested that I think Mr. Bayly was referring to it yesterday, some seven Task Forces that were defining the level of mandate, or the mandate that different departments were functioning under, and indeed the perspective I took was really relating to one of those Task Forces which was environment. In order to complete the picture one should really do it again in the light of those seven inputs, so it should definitely be updated.

There's one point I should make with regard to the 40 inspectors. I've indicated in the copy that the 40 inspectors does not take into account the rotation of people, vacation, sick leave, or anything else. So that the actual number of people employed maybe more than that indicated.

Q Turn to page 12 of your report. That's where you deal with the issue of Foothills scheduling being of a preliminary nature.

A Yes sir.

Q Did you arrive at that conclusion yourself, or did others arrive at it with you?

A Others -- the group of people that carried on this study, I was but the study director -- arrived at this conclusion and informed me accordingly.

Q Who else was involved with the project?

A The major input in terms



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

1 of project scheduling was Mr. Al Myska of Templeton  
2 Engineering Company.

3 Q I see. The reason  
4 you arrive at your conclusion is because all camps,  
5 roads, airstrips and pads are scheduled for completion  
6 in the first winter, even though borrow activities  
7 continue through the next five years. That's one  
8 reason.

9 A Yes sir.

10 Q Are you aware that  
11 borrow is used throughout a pipeline construction  
12 project for padding for the pipeline?

13 A Yes, I'm aware that  
14 there are some borrow activities to produce weights,  
15 etc., that go on, yes.

16 Q So borrow activities  
17 would have to extend beyond just making camps,  
18 roads, airstrips and pads.

19 A Indeed they would.  
20 That's true. The quantities of borrow that are  
21 required to carry out those things which you've just  
22 mentioned are indicated, I believe, within the exhibit  
23 in terms of yards of borrow by spread, and when one  
24 looks at the harvest operation that would be required  
25 to accumulate the volume of material to put in place  
26 those facilities, indeed it's the major portion of  
27 borrow that's indicated in the exhibit, if my recollec-  
28 tion is correct.

29 Q Yes, but volume is not  
30 indicated on the bar chart with which you take exception.





Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

1 It just shows when that activity is going on.

2 A That's right, yes.

3 Q And you will agree with  
4 me that it will have to be going on till the conclusion  
5 of the project.

6 A Indeed, yes.

7 Q So there's nothing  
8 illogical about it proceeding beyond the construction  
9 of pads and airstrips, is there?

10 A When you put that  
11 interpretation on it, that is not indicated in the  
12 schedule of activities. It's in the exhibit. It's  
13 indicated as a bar chart for a farther project. That  
14 would have become clearer if there had been within  
15 the exhibit a bar chart for a typical spread, and  
16 there wasn't such a bar chart to show how activities  
17 would occur on individual spreads. So the only bar  
18 chart we had was the one for the total project.

19 Q You didn't phone Foot -  
20 hills for an explanation, I suppose.

21 A No sir, I didn't.

22 Q No, and you also find  
23 that a preliminary sort of schedule because all  
24 station site preparation will be completed in the  
25 first winter.

26 A Yes sir.

27 Q Why do you find that?  
28 Why do you reach that conclusion?

29 A Because the actual  
30 station construction will go on long after this bar



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

chart indicates, even during the operation phase. It seemed to us that looking at the total project that people wouldn't be scheduling activities to occur at the very commencement of a program to put into place sites that wouldn't be used for a number of years. It was putting a constraint upon staffing and manpower and contracts that didn't seem to have been thoroughly laid out within the bar chart, anyway.

Q But you didn't phone up Foothills and enquire about that either.

A No sir, I didn't.

Q No. Now, if you look at the bar chart of Arctic Gas, which is on the previous page, if you look under borrow and concrete.

A Yes.

Q Now, that activity ends in April of year 4. Right?

A Right.

Q And pipeline installation doesn't end until April of year 5.

A Yes.

Q And station construction goes on past the end of year 6, it seems.

A Yes.

Q Now do you regard it logical that borrow operations would cease so far in advance of those other two activities?

A Well, the station construction here is the actual civil construction of



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

1 the plant and the installation of the equipment and  
2 facilities. The site preparation for stations, you  
3 will note above that, is in three phases, indicating  
4 that the station sites are prepared because they will  
5 be subsequently used during the actual construction  
6 as campsites, I believe. So I --

7 Q You assume that concrete  
8 and borrow is not required beyond that time.

9 A No, I don't assume, sir.  
10 I'm just presenting the information that was presented  
11 by Canadian Arctic Gas.

12 Q And you didn't phone  
13 Arctic Gas and check it out with them.

14 A Well, it was their  
15 exhibit and I didn't see any reason to phone them.

16 Q What about this other  
17 aspect, pipeline installation goes beyond the time when  
18 borrow operations cease, you don't find that illogical?

19 A Well, the -- I don't  
20 find it illogical in the context of the level of  
21 detail I was working at for this report, sir.

22 Q Well, you're working on  
23 the same levels of details for Foothills as for  
24 Arctic Gas, and yet you seem to find Foothills construc-  
25 tion schedule is of a preliminary nature.

26 A Yes, that's true.

27 Q When you come right down  
28 to it, you never sought any explanations, you just made  
29 assumptions.

30 A I wasn't assuming; I was



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

1 looking at the information before me, and I was  
2 drawing a conclusion from that information.

3 Q But you didn't draw  
4 conclusions from apparently illogical set of bar charts  
5 that Arctic Gas produced.

6 A I didn't consider them  
7 to be illogical, sir.

8 Q I see.

9 A And I didn't say that  
10 the Foothills was illogical. I said it was of a  
11 preliminary nature.

12 Q Well, sir, you arrived,  
13 did you not, at the conclusion that it was illogical  
14 that borrow operations would proceed beyond the  
15 completion of camps, permanent roads, airstrips, and  
16 pads.

17 A For such an extended  
18 period, I found that it indicated to me that if all  
19 the pads were to be built at one time, that it  
20 seemed that the bar chart wasn't of the best.

21 Q But you've never built  
22 a pipeline.

23 A Pardon?

24 Q But you've never built  
25 a pipeline.

26 A No sir.

27 Q No. Ever built a wharf?

28 A No sir, I haven't.

29 Q How did you arrive at  
30 the conclusion that the review of wharf design would





Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

1 properly take seven months?

2 A Where is that indicated,  
3 please?

4 Q It's on chart, page 19.  
5 Facing page 19.

6 A I don't see anything on  
7 that chart that indicates the review of wharves would  
8 take seven months.  
9  
10  
11  
12  
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Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

Q Well there are two items. Preparatory investigations and design and final design of which together form a period of seven months.

A That's not a review.

Q Just a second. You've got an arrow pointed at it.

A Yes.

Q Now am I correct that takes seven months, doesn't it?

A But it's not a review sir. It's not a review by an agency. This is a-- our estimate of the time that would be involved from a pipeline point of view in scheduling activities. In other words, to carry out the investigations of a wharf site and indeed to carry out the design of that wharf, taking into account what was found at the site investigation together with the detailing of the final design, a reasonable time period in our estimate for that to occur was seven months.

Q And how did you arrive at that estimate?

A These estimates were arrived at, I indicated, that <sup>Al</sup>Mr./Myska had a major input in these things and his knowledge is indicated in the report is based upon his years of experience in project management and managing large engineering projects. Where he's dealt with the specific problems of gaining access, scheduling activities and was therefore in the position to



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

provide some basis as to a reasonable time frame in which to do things.

Q How did you arrive at your conclusion that snow and ice roads and I'm referring now to Figure 6A, 6B will do just as nicely. Let's look at 6A. You've got a period of a hundred and eighty days there for review and I think I'm correct in using the word this time, review of ice roads.

A Yes sir. I indicated that we are, with regard to the black triangle which all of them indicate 90, I've indicated in the report that we have taken a position of forwarding to the agency for the purposes of arriving at a schedule, a total review period of ninety days. It's an arbitrary assignment, the ninety days. We utilize this figure based on the recommendation within the Environment Protection Board's -- towards an environmental code. They had indicated in there that a period of ninety days should be afforded.

Q It's ninety days for preliminary design and ninety days for final design?

A In terms of the preliminary design review, there are a number of aspects to snow and ice roads. One indicated here, the route selection and the actual design of those, that a ninety day period should be afforded there for the purposes of allowing us to indicate the scheduling of man power. I might indicate sir, that when we -- when you're confronted with the problem of trying to





Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth

1 place a magnitude on the number of people that might  
2 be involved to exercise some control or exercise  
3 control on a project, you have to put numbers down  
4 in order that you can put a picture together. When  
5 I put down numbers, 60 and 30, these are our estimates  
6 as being reasonable, they're not definitive that it  
7 should -- that there should actually be allotted  
8 ninety days or thirty days. That is a matter of  
9 leave negotiation and we've indicated that the  
10 agency people would indeed be working with the pipe-  
11 line company in working out the scheduling of sub-  
12 missions too.

13 Q Well Mr. Doyle, I think  
14 your ability to answer questions was learned at the  
15 foot of the great master. I think your answer came  
16 sometime ago. You were relying in taking these  
17 figures for snow and ice roads to a certain extent on  
18 the experience of the Environmental Protection Board?

19 A I indicated in here that  
20 when we had to make decisions as to how much time  
21 you look at the body of information available to you.  
22 You can use your inhouse experience or you can use  
23 some document that sets forward a system, and we  
24 drew upon what seemed reasonable to us. So we drew  
25 upon the work that had been published by the En-  
26 vironment Protection Board, we did not in this endeavour  
27 at all seek the advice of the Environment Protection  
28 Board at all.

29 Q Okay there was a Mr.  
30 Myska in this case, who gave you the figures for



11 wharves?

12 A Did you say, was it Mr.  
13 Myska?

14 Q It was not Mr. Myska  
15 in the case of snow and ice roads who arrived at  
16 the number of days.

17 A For the preliminary  
18 reiview periods it was, but the final ones we recog-  
19 nized that the level of effort for a final review  
20 might well -- would depend on the overall scheduling  
21 difficulties that confronted the pipeline company.  
22 It would depend on their level of detail that had  
23 been submitted in the preliminary designs, so the  
24 final review would indeed be a variable feature and  
25 we had no way of knowing what that time might be,  
26 so we opted to take a general time period of allotting  
27 ninety days and I think the Environment Code indicated  
28 to a maximum of ninety days, that the matter might  
29 well get accommodated in a lot less than that.

30 Q What do you foresee  
31 happening if the agency can't perform it's review  
32 function as you see it within the frame as you see it?

33 A I don't know what you're  
34 trying to get at.

35 Q Well, you've given a  
36 figure of ninety days in most instances for final  
37 design review by the agency, is that right?

38 A Yes.

39 Q What happens if the  
40 successful applicant submits the design and ninety



Templeton, Doyle, Hernandez  
Cross-Exam by Hollingworth  
Cross-Exam by Goudge

1 days goes past and no word has been heard from the  
2 agency?

3 A Well it's indicated  
4 that there is a sequence of events and a right of  
5 appeal of course to, I believe, the minister.

6 Q As an appeal for no  
7 action?

8 A Well of course.

9 Q Well that would be one  
10 in legal circles.

11 Mr. Veale is giving me an  
12 education back here, excuse us.

13 Do you consider the event  
14 of an emergency arising, where say a -- it was re-  
15 quired to stab through a mile snow road, a mile long  
16 snow road somewhere. What would happen in that  
17 instance?

18 A I didn't examine all  
19 the trials and tribulations that will inevitably con-  
20 front the actual project. My objective was to identify  
21 key activities and put some manpower numbers on those.

22 Q Well that's fine. You  
23 didn't consider. I want to know. That's the answer.

24 A That's the answer.

25 Q Okay, thank you, I  
26 have no further questions.

27 CROSS-EXAMINATION BY MR. GOUDGE:

28 Q Mr. Templeton, let me  
29 begin with you sir, in relation to your land use  
30 statement delivered yesterday. As I understood you,



Templeton, Doyle, Hernandez  
Cross-Exam by Goudge

1 in reverting to your previous testimony concerning  
2 the Coastal Route and the Interior Route, you indicated  
3 that you had previously held the Coastal Route to be  
4 acceptable because you felt at that stage, that there  
5 would be a need to bring Beaufort Basin gas ashore  
6 west of the Delta and that the Coast would therefore  
7 be necessarily affected in any case and as a result,  
8 you might as well have the Coastal line -- the Coastal  
9 mainline. Is that a fair synopsis of your previous  
10 position?

11 WITNESS TEMPLETON: A Yes.

12 Q Now I'm not quite sure  
13 why you've changed that position. Could you perhaps  
14 elaborate for me on the reasons why you changed that  
15 position?

16 A Well I think the -- at  
17 that time, I was not -- I was not clear on the --  
18 I'm still not too clear on where reserves would occur  
19 or where the most likely -- nobody knows where they  
20 would occur, but, you have to in a situation like  
21 this look on the probabilities and I -- perhaps the  
22 easiest way to explain that would be on page -- sketch,  
23 slide 14, which is opposite page 9 of the talk that  
24 I gave which is appended to that. It has a little  
25 map there.

26 Q Yes, I've got that.  
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Templeton, Doyle, Hernandez  
Cross-Exam by Goudge

1 The outline of the tertiary  
2 basin where the reserves will be located will be inside  
3 that basin and there's a fault running diagonally  
4 northwest through that and although the fault isn't  
5 shown on that map, you can see it by the spotting of  
6 the wells.

7 A Do you mean northwest  
8 or northeast?

9 Q Northeast, sorry. And  
10 apparently this has a greater chance of having oil  
11 and gas reserves and so if there are any fields that  
12 they're more likely to be there, they're liable to  
13 be anywhere but they're more likely to be there; and  
14 if you describe an arc around Taglu, you can't help  
15 but come to the conclusion that quite a large portion  
16 of that tertiary basin could be taken to Taglu almost  
17 as easily or as easily as going to the coast, west  
18 of the delta, and so, in my opinion, it reduced the  
19 chances of having to go to the coast and I recognize  
20 that the tertiary basin does follow along the coast  
21 alright, but is very difficult to predict these things  
22 and as the Environment Protection Board said it was  
23 most anxious to not have a corridor across the northern  
24 Yukon, and there's always--even though we're recommending  
25 to the Commissioner that he not recommend a corridor,  
26 once the pipeline is there, there's more of a tendency  
27 to put the other facilities of a corridor.

28 So, all things considered,  
29 it seems to me that you could go to the Taglu fields  
30 for most of the area rather than the north coast and



Templeton, Doyle, Hernandez  
Cross-Exam by Goudge

run the chances of having the gas discovered at a location where you couldn't go to Taglu? I don't think there is anything in the Inuvik hearings that said how we were going to get the gas from these offshore fields to the shore. So, there are a lot of unknowns yet.

I take it you're discounting or not considering the possibility of gas development in the tertiary basin west of the delta towards Prudhoe Bay?

A Oh, you mean that narrow band like is shown on the map?

Q Yes. You acknowledge that that basin continues westward?

A Yes, I recognize that but the general area and, of course, there may be gas fields in there but it seemed to me that the risk, not the risk, the chances of having were not as great as I had originally thought.

THE COMMISSIONER: Mr. Bayly called a witness, Dr. Shearer, at Inuvik who said that if you follow the line of the continental shelf that pinches in as you move toward the International Boundary, and apparently the basin where the structures indicate that petroleum must be found and to some extent follows the contour of the continental shelf. Dr. Shearer also said that the practical difficulties of getting the stuff out become far more severe once you move beyond the continental shelf.

So, he appeared to agree with



Templeton, Doyle, Hernandez  
Cross-Exam by Goudge

1 you in that he felt the main body of discoveries would  
2 likely be north of Tuktoyaktuk and north of the delta  
3 generally but not likely extending towards the  
4 International Boundary and towards Prudhoe Bay. Now,  
5 it's all guess work. That's what he said, wasn't it,  
6 Mr. Bayly?

7 MR. BAYLY: That's basically  
8 right, sir, although he did mention that there was a  
9 possibility of finding some reserves between Herschel  
10 Island and the Mackenzie Bay. It became less likely  
11 the further west you went.

12 THE COMMISSIONER: Right.  
13 That was it. But it was the contour of the continental  
14 shelf that seemed to loom largest in his considerations.

15 A I think that the upper  
16 line indicated by the northern extent of the tertiary  
17 basin does indicate that pinching down towards around  
18 Herschel Island.

19 MR. GOUDGE: I take it, Mr.  
20 Templeton, the conclusion you now draw is that because  
21 it's not so likely there would be a line of shore west  
22 of the delta. In any event, you switched from the  
23 coastal mainline route to the interior mainline route?

24 A I don't think I've switched.  
25 I've always preferred the interior and still do, but  
26 I don't think the chances of meeting it in the coast  
27 are great.

28 Q Now, Mr. Doyle, in your  
29 evidence concerning the regulation of any gas pipeline,  
30 you began, as you say, with the assumption that the line





Templeton, Doyle, Hernandez  
Cross-Exam by Goudge

1 would regulate only environmental matters. You were  
2 asked a little yesterday about the staffing that might  
3 be necessary if it were also charged with regulating  
4 social matters.

5 Let me ask you this; in your  
6 view, would the regulation of social matters be more  
7 or less effectively carried on in the same agency that  
8 was charged with regulating environmental matters or  
9 would it be preferable to establish two agencies?  
10 One with responsibility for environmental matters and  
11 one with responsibility to social matters.

12 WITNESS DOYLE: Mr. Goudge,  
13 I don't have an opinion on that. It would be purely  
14 my opinion. I looked at the problem from a management  
15 perspective of given this, then what.

16 Q You outlined four steps  
17 that would be part of the planning process in the  
18 agency that you are analyzing, the pre-planning or the  
19 setting up of guidelines and codes and so on, the  
20 initial review, the final review and the inspection  
21 process. Do I have your four part approach basically  
22 correct?

23 A Yes.

24 Q Is that, to your knowledge,  
25 a usual four part inspection process or regulation  
26 process that has been operated for other major projects?

27 A Well, I don't think we  
28 have the experience to look at the consolidating of  
29 government control over large projects. We don't have  
30 that experience base, to my knowledge, to say this is



1       how you actually go about consolidating things on a  
2       one project basis. I'm unaware of any agency being  
3       established in Canada to consolidate the control of  
4       a large engineering project for all government  
5       departments.

6                               Q       I take it though the  
7       four steps that you set out are steps that take place  
8       now in the regulation by authorities, though they be  
9       numerous of major development projects?

10                           A       Yes.

11                           Q       Now, the preliminary  
12       design review process that you described, you say  
13       could be waived in certain circumstances?

14                           A       Yes.

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1 Q What you're envisaging  
2 there, under what circumstances would that step in  
3 the process not be necessary?

4 A Well, when you take the  
5 body of information as it's been presented here, sir,  
6 there may well be within that sufficient detail of  
7 what is intended by the applicant to respond to the  
8 preliminary design review requirements, and you may  
9 well take the findings of this Inquiry and say, "Well,  
10 that's been adequate for the purposes of preliminary  
11 design review."

12 Q And the next step would  
13 be to have the proponent go on to final design  
14 review.

15 A Right.

16 Q And you say at page  
17 44 of your evidence that that final design review  
18 would take place prior to the letting of contracts.  
19 Do I understand that correctly?

20 A Yes, that's most  
21 desirable.

22 Q By that I take it you  
23 mean the letting of contracts by the owner, or the  
24 proponent to the people who will build the line, to  
25 the people who will supply the equipment and so on?

26 A Right, sir.

27 Q I'm interested that this  
28 final design review, which is, I take it, the last  
29 vetting step prior to work being done on the site is,  
30 in your view, to take place fairly far in advance of



Templeton, Doyle, Hernandez  
Cross-Exam by Goudge

work being done on the site, rather than closer.  
Let me put it this way. If you looked at the Alaskan prototype, would you not find that there was a review process that took place just prior to work being done on the line, and that review process results, I think, in Alaska, in the delivery of a notice to proceed. That notice to proceed is handed out and work commences the next day effectively. Under your scheme, the last vetting takes place at a much earlier stage, namely prior to the letting of contracts. Do you agree with that general analysis of your scheme as compared to the scheme in Alaska?

A I think you've confused the preliminary review with the final review. If we referred to the chart we were looking at a moment ago, facing page 30, you will note that the final review -- that's figure 6-A in the report -- you will note that the black triangle, namely "final review" immediately precedes the field activity. So indeed it is in that respect similar to the Alaskan approach.

Q I take it it then comes after the letting of contracts.

A Right.

Q Well, I was then confused by the statement on page 44 which I read wrongly, and I understand now. So really the proposal you make is close to the scheme that is in operation in Alaska.

A Yes.

Q In that sense. Now at





Templeton, Doyle, Hernandez  
Cross-Exam by Goudge

1 page 70 of your evidence, you refer to an appeal  
2 procedure and I take it you're obviously of the view  
3 that there will have to be an appeal procedure from  
4 both the preliminary review and the final design  
5 review. Is that correct?

6 A Yes sir.

7 Q Have you given any  
8 thought to the detail of that appeal mechanism?

9 A I haven't, no.

10 Q Do you know what the  
11 appeal mechanism used in Alaska consists of?

12 A No, I wouldn't want to  
13 recount it here; at the time I undertook this study  
14 we looked at how the Alaskan thing was organized.  
15 We didn't get into the detail of appeal procedures  
16 because it wasn't the main thrust of our effort.

17 Q Do you have any view  
18 as to whether an appeal procedure to an elected  
19 official or to a scientist is preferable?

20 A Well, I think the  
21 appeal procedure, of course, must assume a certain  
22 structure, and when you look at that structure you  
23 evaluate, of course, the appeal procedure. For  
24 example, if things are being reviewed at a regional  
25 level, then there is a hierarchy within any agency  
26 that you can, of course, appeal to initially. It's  
27 only when you can't get satisfaction there that one  
28 goes beyond the agency itself.

29 So within any hierarchy,  
30 within any structure there is in essence an appeal



Templeton, Doyle, Hernandez  
Cross-Exam by Goudge

procedure there anyway.

Q And I take it you've  
no considered views on where you would go to appeal  
outside the agency, you haven't considered that?

A Sorry, could you --

Q You haven't considered  
where you would appeal to --

A No.

Q -- outside the agency.

A The only indication I  
have made is that there would be a Minister responsible  
for the agency, and ultimately if a person is respon-  
sible, they are the source of ultimate appeal.

Q The last Court of  
Appeal would be the Minister.

A I guess after that, one  
would have to go to the lawyers.

Q Now on page 39, sir,  
you talk about monitoring and you say that it's  
obviously desirable that any monitoring function  
be fed back into the regulatory system. I wonder if  
you could tell us how you envisage that happening?

A In looking at the  
monitoring, it seemed to us that there were really two  
broad distinctions one could make in monitoring. One  
was we might call it ecological monitoring, which is  
really contributing to science's knowledge of  
impacts and effects and their predictions and so on.  
That is sort of in the -- let me just say in the  
scientific form. There is other monitoring that relates



Templeton, Doyle, Hernandez  
Cross-Exam by Goudge

1 to existing regulations, such as the parts per million  
2 of BOD or suspended sediments that can be discharged  
3 into receiving bodies. Now that type of monitoring  
4 is, let's say, of a regulatory nature. So making  
5 that distinction, the type of monitoring that we  
6 associated or the intent here in this paragraph on  
7 page 39, the type of monitoring we were referring to  
8 was the -- of the regulatory nature and not of the  
9 ecological nature.

10 Q Do you therefore, by  
11 implication, exclude ecological monitoring from the  
12 functions of this agency?

13 A Yes sir.

14 Q Is it your view that  
15 ecological monitoring is not desirable, or that it's  
16 preferably done by someone else other than the  
17 regulators?

18 A Well, I think the  
19 objectives of ecological monitoring are different  
20 than the objectives of the agency. The objectives of  
21 the agency are to control a project and that's their  
22 prime focus. The objectives of ecological monitoring  
23 are to contribute to the body of science and to  
24 learn from experience, and it is therefore of a  
25 different nature, and as such doesn't really come  
26 within the focus of prime objective of the agency.

27 Q Let me put this  
28 proposition to you, that it's desirable that  
29 ecological monitoring be fed back into the regulating  
30 agency so that the specifications being administered





Templeton, Doyle, Hernandez  
Cross-Exam by Boudge

1 by the agency can be altered, if necessary, as  
2 demonstrated by ecological change. For example,  
3 ecological monitoring may reveal that the specifications  
4 being administered by the regulator are not adequate  
5 or are more than adequate, and could be changed.  
6 Now, unless there's an ecological monitor providing  
7 information of that kind to the regulator, there  
8 will not be that sort of input into the regulating  
9 activity. Is there any merit in that proposition?  
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Templeton, Doyle, Hernandez  
Cross-Exam by Goudge

1 A There's certainly merit  
2 in it, in my opinion. It becomes difficult when you  
3 go through the various items that one might be  
4 monitoring and it becomes -- you expect to get a  
5 reliable output from your monitoring effort, in some  
6 cases instantly if you're talking about let's say  
7 the disturbance from aircraft or something or other  
8 that's an instantaneous output and could well be  
9 fed back in. If you're talking about something more  
10 subtle, such as people talk about in terms of fisheries  
11 and aquatic systems, it may be far more subtle and  
12 for them to have confidence in what they are finding,  
13 they may need a lot more time. So in looking at  
14 monitoring I feel if the monitoring effort can feed  
15 back quickly into the control system it's beneficial.  
16 If the particular thing being monitored cannot feed  
17 back, then my own opinion would be that it seems  
18 unnecessary to carry on that effort within the  
19 agency.

20 Q Your view, though, is  
21 that if it can be fed back it should be fed back.

22 A Yes sir.

23 Q And based on that  
24 wouldn't it be desirable for the agency to have an  
25 ecological monitoring facility?

26 A Yes.

27 Q On page 39 of your  
28 evidence you indicate that the agency you describe  
29 would have an ongoing function, passing beyond the  
30 conclusion of construction. Do I understand that



Templeton, Doyle, Hernandez  
Cross-Exam by Goudge

1 correctly?

2 A Yes sir.

3 Q Have you formed any  
4 views as to where the temporal line is drawn and the  
5 agency passes its responsibilities back to existing  
6 control mechanisms?

7 A Not definitively. In  
8 estimating manpower requirements we got to the end  
9 the  
10 of/construction phase and recognized that there  
11 were maintenance activities that would continue, and  
12 we indicate some level of effort required in there.  
13 However, someone brought up yesterday the subject  
14 of looping would cast things in a different light.  
15 So I have just indicated or recognized that control  
16 would pass back to the -- to other government depart-  
17 ments after an appropriate time. I haven't defined  
18 what that would be.

19 Q So there's that problem  
20 that the future holds to unravel. There as well, I  
21 take it, would be the problem of meshing this agency  
22 while it was in existence with the regulation of  
23 the same project south of the 60th Parallel.

24 A Indeed, yes.

25 Q Have you given any  
26 thought to that problem?

27 A Well, the level of  
28 thought given to it was not extensive. In undertaking  
29 this study we were discussing whether or not we  
30 should indeed be taking that into account, and we  
recognized that it was a very difficult question to



Templeton, Doyle, Hernandez  
Cross-Exam by Goudge

1 wrestle down with in the time frame of this study, in  
2 the three-month period, and that it was complex, it  
3 would be difficult, it would require a lot of discus-  
4 sion and negotiation, and that we should really  
5 leave it out of this study.

6 Q On page 72 you've  
7 discussed certain problems that will surround the  
8 life of the inspection staff in this project --  
9 sharing construction camps, climate, fishing trips and  
10 so on. I take it that you simply raise that as a  
11 problem. Let me ask you if you can help us with  
12 solutions for that kind of problem?

13 A I think Mr. Templeton  
14 might have a greater base of experience from which  
15 to assist you on that.

16 WITNESS TEMPLETON: I think  
17 you wanted a short answer, that's the problem.

18 Q What's your view on  
19 that, Mr. Templeton?

20 A Well, I think you have  
21 to recognize this is a very serious problem when  
22 you're living in a camp that is provided by contractors  
23 and pipeline companies. But I think the size of the  
24 regulatory staff is such that they would have to  
25 -- you'd have to try and maintain sort of an arm's  
26 length -- I'm not sure that's the right term, but  
27 you'd have to maintain some isolation and it's not  
28 at all unusual to require that housing facilities,  
29 trailers or whatnot, be provided for the regulatory  
30 staff separate from the -- you wouldn't want to put





Templeton, Doyle, Hernandez  
Cross-Exam by Goudge

1 the men in the same bunkhouse, for example, as the  
2 people. You like to try and maintain some kind of  
3 separation for them, and you'd have to specify very  
4 clearly the logistic -- how they can get around.  
5 I think Dr. Wilimovsky pointed out the problems in  
6 Alaska where they wanted to look at things but there  
7 was never any truck available for them to go and  
8 look at them. So those things can be handled by  
9 -- in the specifications for --

10 Q Separation of living  
11 quarters ensuring --

12 A -- ensuring logistic  
13 mobility, yes.

14 Q Anything else that  
15 occurs to you?

16 A Those are the main  
17 things, I think.

18 Q Let me ask you this.  
19 What about the rotation of inspectors on a regular  
20 basis from spread to spread? Is that a desirable  
21 means --

22 A Well, I think that  
23 will come anyway because undoubtedly the inspectors  
24 will be rotated for rest periods anyway, and in  
25 all probability they may not go back to the same  
26 spread.

27 Q Well, let me suggest  
28 to you that it is desirable to rotate them, although  
29 the trade-off made presumably is that the inspector  
30 arriving on a new spread lacks a certain information



Templeton, Doyle, Hernandez  
Cross-Exam by Goudge

1 base.

2 A Yes, indeed you have  
3 to be fairly careful because if, for example, you're  
4 going along the North Coast, the inspector might be  
5 trained quite extensively in things like birds,  
6 waterfowl, that a person in some other spread might  
7 not have that training, so I think you can maintain  
8 a separation. It's not at all unusual. In the  
9 engineering business this is done all the time where  
10 the supervisory staff on behalf of the owner, the  
11 engineering supervisory staff have the same problem.  
12 So -- and in addition to the inspectors that Mr.  
13 Doyle is talking about, will be the other inspectors  
14 to look after the other regulatory aspects. So there  
15 would be a fair number there and I think they could  
16 maintain their isolation.

17 Q Now, you were asked  
18 yesterday a little about -- Mr. Doyle, you were asked  
19 about enforcement techniques. I take it the agency  
20 and its inspectors would, in your view, obviously  
21 have the power to bring transgressions before the  
22 Courts, the power to deal with the bonds that may be  
23 posted, and as well the power in the last resort to  
24 shut the project down. Is that a fair recitation of  
25 their series of powers? Or are there others?

26 WITNESS DOYLE: No, I  
27 think so, sir. In discussing this with some people  
28 I have found the opinion that people within one  
29 agency can delegate an authority or responsibility  
30 to look after their interests, let's say a fisheries



Templeton, Doyle, Hernandez  
Cross-Exam by Goudge

1 officer. However, the parent department maintains the  
2 legislative mandate for enforcement, so you know, that  
3 whole subject area is something that really has to be  
4 worked out in detail.





Templeton, Doyle, Hernandez  
Cross-Exam by Goudge

1 Q I take it you've not  
2 concentrated on analyzing the alternatives?

3 A No, sir.

4 Q Now, lastly, Mr. Doyle,  
5 have you given any thought in reviewing the activities  
6 of this agency to the possibility of what I could call  
7 third party involvement in the agency? That is,  
8 participation in the regulatory process by interest  
9 groups, community groups, environmental groups as a  
10 matter of institutional structure? Have you given  
11 any thought to that, and if you have, what are your  
12 views on the practicality of third party involvement  
13 in a regulating agency?

14 A I haven't considered  
15 it to any depth, sir. I believe it's important that  
16 an agency have a prime focus and that that goal be  
17 translated into objectives and a strategy for going  
18 about its job and I think that the more you cloud this  
19 by putting in other interests and other objectives,  
20 the more difficult the task of the agency will become?

21 So, my personal preference  
22 would be to keep the agency goal oriented and not to  
23 try to bring into it a lot of other interest groups  
24 that have other objectives and being there.

25 MR. GOUDGE: Thank you, sir.  
26 Those are all the questions I have of this panel.

27 THE COMMISSIONER: Well, thank  
28 you very much, Mr. Doyle and Mr. Templeton and Mr.  
29 Hernandez, and we all appreciate the trouble you've  
30 gone to to give us your views on these subjects and



1 I know, Mr. Templeton, that with the disbandment of  
2 the Environment Protection Board, you have undertaken  
3 these appearances in preparation of this material  
4 in your private capacity and I want to thank you for  
5 that, and I think I speak for all of us in saying that  
6 is an admirable exercise in good citizenship and we  
7 all pay tribute to you for that.

8 We invite you to return, sir,  
9 on November 15th to get your last crack at this thing,  
10 your last crack at me.

11 WITNESS TEMPLETON: I'll  
12 try to be more brief next time, sir.

(WITNESSES ASIDE)

13 THE COMMISSIONER: Well,  
14 where are we now, Mr. Goudge?

15 MR. GOUDGE: Well, sir, we're  
16 unfortunately fogged in in Hay River. The Beaufort  
17 Delta people that I would like to present to you first--  
18 I think it makes more sense to have their evidence  
19 before Mr. Hemstock is cross-examined on his material.  
20 I have this note that they're stranded in Hay River  
21 because of fog in Yellowknife but we'll probably get  
22 to the hearings by 2:00.

23 What I suggest, sir, is that  
24 we break for lunch now, take an hour and a half and  
25 see where we are then. If they're here, I would  
26 suggest, sir, that we begin with them and they can  
27 read their evidence and then be subjected to cross-  
28 examination. If they're not here, I would propose,  
29 although I haven't talked to Mr. Steeves or Mr.  
30 Ziskrout yet, but Mr. Hemstock present himself to be



1 cross-examined on the five documents that he's  
2 accompanied by and that in either event, we attempt  
3 to accomplish both those tasks this afternoon, in  
4 whatever order.

5 THE COMMISSIONER: And could  
6 you tell me what is supposed to happen tomorrow again?

7 MR. GOUDGE: Well tomorrow,  
8 sir, we begin with the Foothills summer construction  
9 panel and we follow that with the Arctic Gas winter  
10 construction panel. I think, sir, that both those  
11 may be able to be accomplished tomorrow.

12 THE COMMISSIONER: What does  
13 that leave for Friday? Travel?

14 MR. GOUDGE: Yes, sir.

15 THE COMMISSIONER: Okay.  
16 Well, let's come back here at 1:30 and see what's  
17 cooking.

18 MR. GOUDGE: Let's say 1:45,  
19 sir.

20 THE COMMISSIONER: Yes, okay  
21 1:45.

22 (PROCEEDINGS ADJOURNED TO 1:45 P.M.)  
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R. A. Hemstock  
In Chief

(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

MR. GOUDGE: I think sir, we're prepared to resume. I propose that we begin the afternoon with Mr. Hemstock. Mr. Hemstock will be delivering evidence for Arctic Gas relating to the corridor concept for parallel transportation and communication modes and in addition, has agreed to respond to any questions the participants may have on four reports which have been filed with the Inquiry by Canadian Arctic Gas, one dealing with contingency plans, one dealing with fuel spills, one dealing with monitoring and one dealing with archaeological salvage methods. Mr. Hemstock needs neither to be sworn nor qualified sir, he's as you know been here before.

MR. STEEVES: I might mention that Mr. Hemstock is represented by counsel here.

MR. GOUDGE: Ablv represented I should say, sir, yes.

THE COMMISSIONER: Does that account for Mr. Templeton's presence here today?

MR. STEEVES: I'm glad I was allowed to get a word in.

R. A. HEMSTOCK: resumed

WITNESS HEMSTOCK: With respect sir, I don't see how I can possibly win, this afternoon.

MR. STEEVES: If you don't want me, I'll leave.  
DIRECT EXAMINATION BY MR. STEEVES: resumed  
Mr. Hemstock, do you have

RUSSELL ALEXANDER HEMSTOCK,





R. A. Hemstock  
In Chief

1 before you, the summary, statement of your evidence  
2 that was filed and I'm not sure of the exact date.  
3 Could you give me the date?

4 A No, I'm sorry, I can't.  
5 It was filed several months ago. The corridor concept  
6 for parallel transportation and communication modes.

7 Q Well would you turn to  
8 your evidence please. Perhaps you'd better read it,  
9 I'm not certain that everyone here has a copy.

10 A First I might explain  
11 that this was our attempt to respond to the require-  
12 ments of the pipeline guidelines and I'll just begin  
13 with a few general remarks.

14 In a modern economy, trans-  
15 portation normally accounts for up to 25 percent of a  
16 nation's production effort. Since Canada is such a  
17 large country, transportation requires a relatively  
18 larger portion of the GNP, and especially in develop-  
19 ing areas such as the Arctic, there will be an even  
20 larger proportionate charges for transportation.

21 The corridor concept with  
22 regard to transportation and communication was intro-  
23 duced<sup>in</sup>/land use planning to improve the land utiliza-  
24 tion, to lessen environmental impact, to reduce  
25 costs and to improve efficiency. The concept has long  
26 been applied in urban areas but has only recently been  
27 extended to the development of rural and frontier  
28 areas. It is now being considered particularly with  
29 regard to the movement of natural resources, to  
30 market areas.



R. A. Hemstock  
In Chief

The corridor concept requires the placement of all transportation and communication facilities in a single corridor to optimize land use and minimize overall environmental impact. The corridor does not necessarily have a defined width and optimum placement of the facilities in it is not always consistent with the closest possible spacing of those facilities. As applied to the movement of petroleum from the Arctic areas of North America, there are three major corridors proposed, or being developed. There are, the Alyeska corridor across Alaska, the proposed Polar Gas corridor from the Arctic Islands to markets in eastern Canada and the proposed Mackenzie Valley corridor. The latter is being considered as a location for pipelines to move gas and possibly oil from the Mackenzie Delta to southern markets. In addition to the trunk corridor up the Mackenzie, there is a lateral corridor proposed across the northern Yukon to Prudhoe Bay to tie in the gas reserves of the Prudhoe Bay area to the Mackenzie corridor. This corridor would not necessarily have other facilities in it.

The -- as I mentioned, the this is in response to the guidelines for Corridor Planning, and the government has provided those in the expanded guidelines for Northern pipelines June 28th, 1972, and the Government of Canada is prepared to receive and review applications to construct one truck oil pipeline and/or one truck gas pipeline within the following broad corridors.



R. A. Hemstock  
In Chief

1. Along the Mackenzie Valley region in a broad sense from the Arctic coast to the provincial boundary.
2. Across the northern part of the Yukon Territory either adjacent to the Arctic Coast or through the northern interior region from the boundary of Alaska to the general vicinity of Fort McPherson, and thus to join the Mackenzie corridor.

To confine the environmental and social disturbance arising from pipelines and their construction to a limited area, trunk oil and gas pipelines within the corridors outlined in 1 above, are to follow routes that are as close together as is consistent with the differing engineering constraints and environmental hazards of the two types of pipelines, but not so close together as to bring about undesirable environmental interaction between the two lines. The same principle is also to apply where the trunk pipeline route lies parallel and near to a present or proposed highway or other overland communication system.

3. In view of the influence of the first trunk pipeline in shaping the transportation corridor system, and in moulding the environmental and social future of the region, any applicant to build a first trunk pipeline within any segment of the corridor system outlined in 1 above must provide with his application, first the assessment of the suitability of the applicant's route for nearby routing of the other pipeline, in terms of environment and social and terrain engineering





R. A. Hemstock  
In Chief

1 consequences of the other pipeline and the com-  
2 bined effect of the two pipelines; fully engineers  
3 proposals concerning the other pipeline are not  
4 necessarily required.  
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R. A. Hemstock  
In Chief

Assessment of the environmental-social impact of both pipelines on nearby settlements or nearby existing or proposed transportation systems, and; the comparison of the applicant's proposed route with alternative pipeline routes, in terms of environmental and social factors as well as technical and cost considerations, again fully engineered proposals concerning alternative routes are not necessarily required.

The Mackenzie corridor is a natural transportation artery based on the great river which, like those north-flowing rivers of Russia, has for decades provided transportation into the Arctic. As the western Canadian Arctic developed, the initial transportation along the river has expanded in roughly the following sequence:

1. The native use of the natural corridor for travel on foot by dog team and by boat, and by snowmobile.
2. Commerical barge and boat transportation which began in the early 1800's with the first large usage by travellers to the Klondike at the turn of the century. There was a dramatic increase in freight in the early '40's due to the Canol Project and then from 1950 a slow growth to just over 100,000 tons per year in 1967. The exploration requirements of the petroleum industry raised total freight moved by barge to about 450,000 tons per year in 1972.
3. Transportation by air - first using lakes and rivers for float-equipped aircraft beginning in



R. A. Hemstock  
In Chief

1920 and expanding to scheduled air services as far as Aklavik in 1929. By 1934, the Mackenzie corridor was by far the largest in terms of air freight in the world. It was served by Canadian Airways Limited and the following figures for 1934 illustrate the importance of the Mackenzie Corridor:

All the U. S. carriers combined moved 3,449,675 pounds of freight.

Imperial Airways, which included routes to South Africa and the Far East moved 2,578,400.

Canadian Airways moved 5,766,691 pounds.

THE COMMISSIONER: Imperial Airways was a British carrier, I take it.

A British carrier, yes.

Canadian Airways then carried sixty-seven percent more air freight than all of the U. S. carriers combined. In the 1940's, the war effort resulted in the establishment of airfields to supply the Canol Project and northern military installations. In the past fifteen years, there were some 1,420,200 aircraft movements and some 418,000,000 pounds of freight and 1,929,486 passengers moved along the corridor.

4. Winter roads - as early as 1919, motor vehicle operations using tractor trailer combinations commenced on the Great Bear River portage. In 1921, the Fort Smith portage was motorized. During the 1930's, many winter roads were used to serve the mining industry and in the 1940's



R. A. Hemstock  
In Chief

there was extensive use of winter roads supporting the Canol Project. The Fort Simpson-Inuvik toll road operated for four years up to 1974 and there were 4,705 commercial moves along that road.

Private and government vehicles were not counted.

5. Communications go back some 50 years to 1922 when the Royal Canadian Corps of Signals was sponsored to set up radio stations as far north as Herschel Island. Radio teletype was introduced in 1952 and in 1957 the Dewline communication centers became operational. In 1963, construction began on the 916 mile landline from Fort Providence to Inuvik. This was completed in 1966 and includes a twenty-five foot right-of-way the full length of the corridor, which is located an average of some five hundred yards from the east bank of the river over most of its length. A new CNT microwave line, now in the third year of construction, is expected to go on line to Inuvik by July or August of 1976.

The future modes: The Mackenzie Highway is scheduled for completion to Wrigley and is completed from Inuvik to Arctic Red. Partial clearing throughout the right-of-way has been accomplished. The gas pipeline is a proposal for an early start and the oil pipeline and the railway are future.

As the guidelines indicate, the Government of Canada has recognized that the Mackenzie Valley is an established transportation





R. A. Hemstock  
In Chief

corridor and the merits of various alignments within the broad valley region have been described in the Arctic Gas application and in hearings before you, sir. Similar recognition and extensive discussions have also been devoted to alignments through the northern part of the Yukon Territory, either adjacent to the Arctic coast or through the northern interior region.

By its past actions, the government has already defined a corridor in the Mackenzie Valley along the east bank of the river. These actions include the installation of government-owned or controlled facilities such as the barging system, the airfield, telephone lines, winter road and the permanent highway. In view of the extensive evidence put forward by many environmentalists that the main potential impact will come from improved access and that the environmental impact of a gas pipeline will be an order of magnitude less than that of a highway, it is difficult to understand the importance assigned by the pipeline guidelines to the influence of the first trunk pipeline in shaping the transportation system and in molding the environmental and social future of the region.

In fact, the Mackenzie Corridor has already been defined and the potential incremental impact of the pipeline will be small in comparison with that of the facilities already in place, providing that the work is carried out in accordance with the procedures previously outlined by Arctic Gas to this hearing. Arctic Gas has, during the study of the proposed



R. A. Hemstock  
In Chief

1 pipeline routing, consulted the Mackenzie Valley  
2 Pipeline research report, have met with government  
3 highway officials, and has also discussed with the  
4 Beaufort Delta personnel the matter of routing. Talks  
5 have also been held with other agencies in the corridor.  
6 That is the barging companies, the communications and  
7 the air transport companies all toward the utilization  
8 of facilities along the corridor.  
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R.A. Hemstock  
In Chief

1                   On the other hand, it is  
2 clear that the same factors that have brought the  
3 corridor to its present stage of developm ent are  
4 also supportive in determining the location of a  
5 trunk pipeline in the corridor. These factors  
6 involve consideration of terrain, geotechnical,  
7 engineering, and environmental concerns.

8                   The major feature of the  
9 Mackenzie corridor from a geotechnical and terrain  
10 standpoint is its presence of permafrost. As has been  
11 noted, permafrost is sensitive to disturbance in which  
12 the thermal regime is modified. Thus terrains which  
13 may be sensitive to a facility which has a warm oil  
14 line may not be sensitive to a refrigerated gas pipe-  
15 line.

16                  The interaction of a chilled  
17 gas line with a nearby hot oil line must be considered.  
18 Potential problem areas would be limited primarily to  
19 sloping ground where the pipelines are in close prox-  
20 imity. No problem would be encountered with thaw stable  
21 soils, but soils which are not thaw stable may experience  
22 problems with slope stability or erosion if the two  
23 lines are sufficiently close so that the effects on  
24 terrain of one influences the other. There are cer-  
25 tain terrain and topographical conditions wherein one  
26 line could be constructed without experiencing diffi-  
27 culty, but two lines in close proximity could  
28 interact in a manner that could affect terrain and pipe-  
29 line stability. Either a chilled gas pipeline or a  
30 hot oil pipeline could also interact with a highway and





R.A. Hemstock  
In Chief

could affect the stability of the terrain.

The amount of sloping ground traversed by the chilled gas pipeline is relatively small. Where steep slopes are encountered, the pipeline will traverse them at approximately right angles to the contours in order to minimize the disturbance to the slope. The proposed route, therefore, has very little side slope construction. In total, the amount of sideslope which is greater than three degrees inclination is approximately 7% of the route length between Travaillant Lake and the 60th Parallel. An examination of gas pipeline route along the entire length does not indicate any area where the gas pipeline would impede construction of either a highway or a hot oil pipeline or any area where interaction would be a major design consideration.

There may be an optimum spacing of modes within the corridor with regard to such aspects as drainage, and as well there may well be aspects of timing with regard to the impact of drainage disturbance.

Borrow requirements in the vicinity of the corridor are another important consideration and the construction of the first pipeline will provide for the second a better analysis of terrain conditions and a better evaluation of quantity and quality of borrow material available for future pipelines. Two pipelines in a single corridor will require the opening of less borrow pits than would be the case if the lines were in separate corridors.



R.A. Hemstock  
In Chief

1                                Now for the matter of engineer-  
2 ing. The various modes of transportation have widely  
3 varying engineering requirements. River and air trans-  
4 portation require only key sites at widely spaced  
5 intervals for off-loading and refueling. The highway  
6 and pipelines have differing requirements in regard  
7 to the amount of materials required, acceptable grades,  
8 etc.

9                                Because of high capital costs  
10 for a pipeline, one of the principal considerations is  
11 that the line follow the most direct route from source  
12 of supply to the delivery area. The Mackenzie Valley  
13 corridor fits this objective very well with respect  
14 to the gas reserves in the delta and the potential for  
15 future discoveries along the river.

16                              A basic idea behind the corri-  
17 dor concept is that savings will result from multiple  
18 use of facilities. Facilities where common use by  
19 both gas and oil pipelines is feasible include wharves,  
20 airstrips, access roads and staging sites. There may,  
21 in addition, be advantages for a gas line and an oil  
22 line in a common corridor arising from savings in  
23 monitoring and inspection, use of joint or backup  
24 communication facilities, and a possible joint use  
25 of some maintenance equipment and use of gas to power  
26 the oil line.

27                              The construction of the first  
28 pipeline will provide a better understanding of the  
29 potential construction scheduling requirements for  
30 future pipelines.



Vegetation has been analyzed over a broad corridor along the Mackenzie and there are no areas where great difficulty is anticipated in stabilizing and revegetating the right-of-way. Since the two pipelines will be in separate rights-of-way, there should be no conflict nor should there be any environmentally significant incremental effects. We recognize that a refrigerated line and a warm line are best suited to somewhat different terrains, however each will at some location meet all of the terrain factors encountered by the other.

Fisheries. The impact of the gas pipeline on the fish population is expected to be minimal since the construction will be completed during the wintertime, and since there will be minimum disturbance to stream beds as a result of the pipeline crossings.



R.A. Hemstock  
In Chief

1 This assumes, of course, that the work is carried out  
2 in accordance with the mitigative procedures outlined  
3 by Arctic Gas. Although the details of the oil  
4 pipeline construction are not yet available, one would  
5 anticipate winter construction may also be used, and  
6 that the impact of construction would be minimal. One  
7 difference is that a break in the oil line may involve  
8 the spillage of a quantity of crude oil, and should  
9 this enter water courses, there would be a short-term  
10 disruption of the stream. As for the oil pipeline,  
11 the experience in North America shows that many oil  
12 pipelines are operated year after year without failure,  
13 and that furthermore, industry has already undertaken  
14 extensive contingency planning and has equipment in  
15 place so that the impact of oil spills would be restri-  
16 cted to relatively confined areas. Assuming all app-  
17 propriate mitigative measures were taken, the impact of  
18 the two lines would be small and would be additive.

19 Along the Mackenzie the main  
20 potential impact of both the gas and oil lines/will be  
21 the effects of disturbance. Travel by land and air  
22 will increase due to the installation of a gas line.  
23 The number of flights required along the corridor would  
24 be further increased with the addition of an oil line.  
25 It is preferable that these flights be confined to a  
26 single corridor so that through co-operation between  
27 the two pipelines, the number of flights will be re-  
28 duced to a level less than that required if the two  
29 lines were situated in separate corridors and monitored  
30 separately.





R.A. Hemstock  
In Chief

1                   There may be a potential  
2 impact on bird life if oil spills occur, however again  
3 the area affected would be limited.

4                   The gas line is expected to  
5 have little or no impact on mammals, with the main  
6 potential being increased access and disturbance.

7                   It is noted, however, that the  
8 corridor is already the axis of a great many activities  
9 as outlined above. A buried pipeline will create little  
10 additional impact. The oil line will similarly bring  
11 little additional impact with the only difference  
12 being that it will probably have several segments where  
13 the line is above ground. This poses a potential problem  
14 in that it could be a barrier to some movements of  
15 wildlife, however it should be noted that the Mackenzie  
16 River is in itself at least a partial barrier to free  
17 movement and the location of an above-ground pipeline  
18 is logical in a closely parallel corridor.

19                   The impact of the two lines  
20 will be small and will be additive.

21                   For other considerations, in  
22 socio-economic affairs, the joint use of facilities  
23 and of certain towns as operating headquarters will  
24 provide a greater opportunity for co-ordinated planning  
25 with both governments and local people. The presence  
26 of the two facilities will provide greater scope for  
27 employment and may make certain business ventures more  
28 viable in the northern setting.

29                   Both pipelines will require  
30 cleared rights-of-way and above-ground operating pump



R.A. Hemstock  
In Chief

1 stations. The locations of the pipelines in the al-  
2 ready disturbed portion of the Mackenzie Valley will  
3 reduce the potential aesthetic impact of the installa-  
4 tions. The addition of the oil line will have little  
5 additive aesthetic impact although, as noted, parts  
6 of it will likely be above-ground.

7 For archaeology, the installa-  
8 tion of the gas pipeline with the required archaeologi-  
9 cal supervision and salvage will provide detailed base-  
10 line of information regarding archaeological resources  
11 along this corridor. The installation of the oil line  
12 or any other subsequent development will be facilitated  
13 by this additional information, and again little  
14 additional impact is anticipated.

15 Now for the Yukon coastal  
16 corridor, this corridor is also a natural corridor  
17 for transportation but it has not had the same degree  
18 of modern development as has the Mackenzie Valley  
19 corridor.

20 The historical modes include  
21 . the prehistoric times when the Arctic Slope  
22 was used as a travel corridor by native people.  
23 . Barge and ship traffic which has moved along the  
24 Beaufort Sea coast since whaling began in the early  
25 -- in the area nearly a century ago.  
26 . In the mid-'50s, airfields were developed at  
27 the DEW Line stations to provide transportation access  
28 to these stations. Much of the traffic came from  
29 bases in the south, however there were east-west  
30 flights into Nicholson, Atkinson Point, Tuktoyaktuk,



R.A. Hemstock  
In Chief

1 Tununuk, Shingie Point, Stokes Point, and Komakuk.

2 Each of these sites had in the early years average tra-  
3 ffic of two flights (four aircraft movements) per week  
4 by DC-3 and five flights (10 aircraft movements) per  
5 day by C-46 and smaller. This activity totalled over  
6 3,800 aircraft movements per site per year or about  
7 15,000 per year from the eastern edge of the delta  
8 to the Alaska border. They continue on<sup>a</sup> limited basis.

9 . There has been no commercial use of winter roads,  
10 along that corridor, but winter travel by mechanized  
11 vehicles has been a feature of geophysical and explora-  
12 tion drilling work, together with the occasional move-  
13 ment of equipment and people to and from Alaska.

14 The future modes include the  
15 gas pipeline, as a proposal for early start, and  
16 there's no proposal for a highway along the Yukon  
17 coast, nor for an oil pipeline, nor do I think there is  
18 any reason at this time to believe that these facili-  
19 ties will be required.

20 Now I believe that the  
21 terrain and geotechnical features and the engineering  
22 comments made for the Mackenzie corridor would apply  
23 basically to the Yukon corridor.

24 From the environmental aspects  
25 for vegetation, we have analyzed that over the North  
26 Slope of the Yukon. The area will be more difficult  
27 to revegetate than the more southern sections of the  
28 right-of-way, but experiments show that the land surface  
29 can be stabilized and that certain grasses can be  
30 established. The gas line is expected to have little





R.A. Hemstock  
In Chief

1 impact on the vegetation of the area. Because it  
2 would be warm, an oil line along this corridor would  
3 tend to have a different right-of-way requirement,  
4 however the revegetation problems would be no more  
5 difficult and any potential impacts should be  
6 additive.

7 The fisheries, the potential  
8 impact of the gas pipeline is expected to be minimal  
9 provided there's a prohibition on the withdrawal of  
10 gravel from the flowing stream beds and an avoidance  
11 of critical overwintering areas. The potential impact  
12 of the construction of the oil line would be similar,  
13 as noted above regarding the Mackenzie corridor and the  
14 restraints basically the same, so that the potential  
15 impacts of the two would be additive. A road would  
16 have much greater impact than either pipeline because  
17 of its greater borrow requirements, its greater effect  
18 on drainage, and because of the greatly increased  
19 access which will be provided.

20 For birds, the potential  
21 impact of the gas pipeline would be mainly associated  
22 with disturbance and increased access. The area of  
23 greatest concern is the snow geese staging which  
24 occurs on the North Slope and in portions of the  
25 Mackenzie Delta between about August 15th and October  
26 1st. Disturbance studies indicate that the birds can  
27 tolerate a certain amount of disturbance, specifically  
28 three or four flights a week. The oil pipeline would  
29 have a similar potential impact during construction and  
30 operation but further studies and more precise



R.A. Hemstock  
In Chief

information about the operations of the oil pipeline are required before it can be determined whether the impacts of the two pipelines are likely to be additive or synergistic, and whether the total potential impact of the two lines would be within acceptable limits. It is probable that the increased personnel and aircraft flights resulting from the pipelines would be less than occasioned by the Dew Line sites as described above. Because of the increased access and disturbance, a highway would have a much greater potential impact than either pipeline.

For mammals, the potential impact of a gas pipeline would be associated with increased access and disturbance, with the main concern being the Porcupine caribou herd. The most critical period is from calving in May-June to the dissipation of the post-calving aggregation about August 1st. With mitigative measures, that Arctic Gas has proposed, no serious impact on the caribou is expected. An oil line built with present technology would be partly above-ground and a considerable additional study would be required to determine its best location and the potential impact on what may be a partial barrier to the free movement of the herd. Further studies would be required to determine what the potential impact might be. A highway would have the greatest potential of for impact because of the increased access to important caribou areas.

Among the other considerations are the socio-economic ones. There are no settlements



R.A. Hemstock  
In Chief

1 associated with the coastal route, so the socio-  
2 economic impact of the two lines would not be great  
3 in this area. The highway would have a substantial  
4 socio-economic impact because it would provide access  
5 to the area, and easy movement of people between  
6 Alaska and Canada. Studies are required to define the  
7 nature of this impact.  
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R. A. Hemstock  
In Chief

Aesthetics: Both pipelines would have pumping stations and the oil line would likely be above ground for part of the alignment. The right-of-way would not require clearing and would not be greatly different from the surrounding area. These impacts would be additive with the oil line in having somewhat more aesthetic impact. A highway would have a much greater impact on the aesthetics of the area than either pipeline.

Archaeology: A gas line will provide extensive baseline information regarding the archaeological resources along the coastal area. An oil line would have a separate right-of-way and would produce additional information. The potential impacts would probably be additive.

We can conclude then that along the Mackenzie Corridor, which has already been established, the installation of gas pipeline will have little incremental impact on the environment, nor will there be a marked impact on the aesthetics or on the archaeological resources of the area. The gas line will not seriously affect the alignment of future facilities, since they have differing requirements in terms of terrain and engineering factors. Installation of any future facilities including an oil line will benefit from the installation of the gas line first because its construction will provide a greater data base and greater field experience, the use of common facilities during construction and operation and maintenance and finally, backup in terms of operating





1 procedures.

2 The Mackenzie Corridor on the  
3 east bank of the Mackenzie River will incorporate for  
4 all the present and proposed facilities, a strip of  
5 land bounded on the west by the river, and generally  
6 on the east by the oil pipeline. We believe all these  
7 facilities can be constructed in the corridor and we're  
8 most confident with respect to the gas line that the  
9 environmental impact will be within acceptable limits.  
10 Of the proposed facilities, the highway will have the  
11 largest potential impact.

12 Along the Yukon Corridor,  
13 the installation of gas pipeline will have little  
14 incremental impact on the environment and there'll  
15 be minor impact on the aesthetics or on the archaeo-  
16 logical resources of the area. The gas line will not  
17 seriously affect the alignment of future facilities  
18 since there are differing requirements in terms of  
19 terrain, engineering factors and so on. As with the  
20 Mackenzie Corridor, the future facilities' installation  
21 will benefit from the gas line installation for the  
22 same reason.

23 There is presently no proposals  
24 for either a highway or for an oil line along the coast,  
25 and if either were to be considered, additional study  
26 would be required.

27 MR. STEEVES: Mr. Hemstock is  
28 now available for cross-examination and to answer  
29 questions that anybody may have arising out of Exhibit  
30 663, 665, 666 and 668.



R. A. Hemstock  
In Chief

THE COMMISSIONER: Mr.

Hemstock, after twenty months or whatever it is, I sometimes have the feeling and I think it's known as *deja vu*. Did you mention the interior route here?

WITNESS HEMSTOCK: No, I didn't.

Q I'm glad of that. I was afraid I must have overlooked three or four pages. So, you saved me acute embarrassment. Is there any reason for your omitting the Yukon route--the interior route? That is under the guidelines essentially the same corridor, I suppose. You dealt simply with the coastal route in this paper?

A Yes, I dealt with the coastal route and that was because that was our prime route. I would have very much the same comment, I think, with regard to the interior route. I would note first of all that it doesn't have any of the background as a corridor or other uses that the coastal route has.

Q Historical--

A Historical background. Because it is through mountainous areas, it's more confined than the coastal route is and the future lines, such as an oil line or a highway would, therefore, be in some areas very closely confined to the alignment of the first pipeline. I would think that in that case, the pipeline would perhaps have much more impact on the following facilities because it would



R. A. Hemstock  
In Chief

1 be normal, I suppose, to select the best areas, confined  
2 area, for the first project which just went in there.

3 But I would think that there  
4 would have to be additional studies done with regard  
5 to the impacts of an oil pipeline because in many cases  
6 it would be above ground. It would be a barrier to  
7 free movement and again, the movement of say caribou  
8 is more restricted in those areas and the highway would  
9 have all the impacts that I mentioned. It would bring  
10 in access to areas which are very important to wildlife  
11 for perhaps a longer period of time than the coastal  
12 route.

13 Q I'm inclined to recollect  
14 the evidence of Dr. Weedon who gave evidence at  
15 Whitehorse last year and again in the fall. He's  
16 a biologist who was an assistant to Governor Hammond,  
17 I think. Did he say--maybe you have a recollection of  
18 this. Did he say that he felt that to build a gas  
19 pipeline along the interior route, at least through  
20 the Alaskan segment of the interior route, you'd have  
21 to build an all-weather road to do it? I'll have to  
22 check that out.

23 A I'm sorry. I can't  
24 remember that he did say that, although I know that  
25 our plans call for a road along portions of it because  
26 we need access from airstrips to compressor stations.  
27 I can't recall whether he said it would require a road  
28 or what.

29 Q The Alaskan portion of  
30 the interior route takes you through the Brooks Range





R. A. Hemstock  
In Chief  
Cross-Exam by Bayly

1 and that's a range that is something like seven thousand  
2 feet or more.

3 A Yes, they're quite  
4 rugged mountains.

5 Q Yes.

6 A Rugged topography and  
7 we would not be able to build airstrips in a good  
8 portion of that mountainous area and would have to  
9 provide access to compressor stations year round from  
10 sites outside.

11 Q Yes. Right.

12 MR. GOUDGE: Mr. Bayly of the  
13 Committee for Original People's Entitlement can lead  
14 off the cross-examination.

15 CROSS-EXAMINATION BY MR. BAYLY:

16 Q Mr. Hemstock, when you  
17 talk about the corridor in the context of the Mackenzie  
18 Valley, I take it that you're talking about something  
19 quite different from what Mr. Templeton has been  
20 talking about the past couple of days. He's talking  
21 about a five mile strip that is in widths varying to a  
22 two mile strip to be designated as the energy corridor.  
23 You don't mean that, I take it?

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R. A. Hemstock  
Cross-Exam by Bayly

1 A I'm talking about a  
2 somewhat lighter corridor. I think I defined it as  
3 that area between the -- where the proposed oil pipe-  
4 line might be and the east bank of the Mackenzie  
5 River. Some places that would be in the order of  
6 perhaps less than 5 miles but in other cases, it's  
7 considerably wider than that.

8 Q And is that because  
9 that we can't tell from the information we have that  
10 the alignment chosen by either Arctic Gas or Foothills  
11 would be suitable for more than one facility in a  
12 five varying to a two mile stretch?

13 A Well we can't be par-  
14 ticularly specific about what requirements for an  
15 oil pipeline would be, however, if you have read the  
16 evidence that was to be presented by the Beaufort  
17 Delta, you will see that they have selected a corridor  
18 and I've forgotten, I think it's 18 kilometers wide  
19 as a study corridor and that they would put the  
20 oil pipeline within that corridor. And you will see  
21 that --

22 Q In some places your  
23 route is --

24 Q A Well most of those were  
25 inside and we are outside that closer to the river  
26 at two locations north of Fort Good Hope.

27 Q Now I don't want to  
28 discuss their corridor with you, but, you talked  
29 about the corridor as being something that we may be  
30 able to expect depending on people's plans to find not



R. A. Hemstock  
Cross-Exam by Bayly

1 only an oil pipeline but perhaps a highway, a rail-  
2 way, perhaps hydro transmission lines. Is that  
3 correct?

4 A That's right.

5 Q And for that reason,  
6 as well, the five mile transportation major corridor  
7 that Mr. Templeton has spoken of might not be adequate  
8 in size to contain all those facilities safely and  
9 appropriately?

10 A It might well be that  
11 some of the other facilities having different terrain  
12 requirements would be better in a somewhat wider  
13 corridor, having a little more flexibility than  
14 provided with the 5 miles.

15 Q And given the evidence  
16 that we've heard on gravel and to a lesser/ on water  
17 sources, we may be in a situation where in some  
18 areas, there will be a scarcity and therefore the  
19 requirement go a long way to get the required re-  
20 sources for all the possible things that might share  
21 the corridor, if the elements in it were too close  
22 together.

23 A I think that that might  
24 apply to gravel resources but certainly not the water  
25 resources, because I don't see the requirements over-  
26 lapping and these are renewable resources, but you  
27 have -- certainly have a point with regard to gravel  
28 supplies if the corridor becomes quite narrow then  
29 there'll be conflicting demands on the gravel supplies  
30 and while I've indicated in the evidence, I don't



R. A. Hemstock  
Cross-Exam by Bayly

1 think that this would be particularly a problem with  
2 two pipelines, neither having particularly great  
3 requirements and with the oil pipeline, coming after  
4 the gas pipeline and being able to use the facilities  
5 many of which require the major amount of gravel  
6 like the airstrips and the docks and so on, that  
7 there would be an overall saving that way. But with  
8 a railway and a highway, that certainly doesn't apply  
9 and they would both have very large demands on gravel  
10 and I could see them, there being problems in certain  
11 areas.

12 Q Now you have spoken  
13 about it being environmentally preferable, I think  
14 on the first page of the statement you just read  
15 to us, to locate a number of facilities in the same  
16 corridor, the third paragraph you state "the corridor  
17 concept requires the placement of all transportation  
18 and communication facilities in a single corridor  
19 to optimize land use and minimize overall environ-  
20 mental impact." Now I don't think there's any question  
21 on optimizing land use, that I think we can accept,  
22 but, I'm concerned with and I asked this same question  
23 of Mr. Templeton, what evidence do we have of the  
24 effects on the environment of locating facilities  
25 closer together rather than farther apart. Quite  
26 apart from the aesthetics, and perhaps quite apart  
27 from what you've said about being able to use the  
28 same airstrips, haul roads, et cetera, so that we  
29 don't have to disturb as many --

A Well that particular





R. A. Hemstock  
Cross-Exam by Bayly

1 feature is one that I think is quite important from  
2 an environmental standpoint. If we can reduce the  
3 number of docks and airstrips and roads, then I  
4 think that has a definite advantage, certainly you  
5 use less habitat.

6 Q What about river cross-  
7 ings? Is there any evidence that it's environmentally  
8 more sound to have two or more facilities crossing a  
9 river in a five mile strip or stretch of -- of the  
10 length of the river than it is to have them more than  
11 five miles apart?

12 A I don't know that there's  
13 any evidence to that effect. We have been collecting  
14 some evidence in observing pipeline crossings in  
15 southern B. C., we've not finished the study yet,  
16 but it would appear that there is a fairly rapid  
17 return to stable conditions after a pipeline crossing  
18 is put in. If the following pipeline were not, say  
19 installed in the next year, then I wouldn't think  
20 that the impacts would be synergistic as Dr. Banfield  
21 has commented on in these hearings. I think that  
22 they might -- there might simply be another impact  
23 similar to the first one a few years later and that  
24 the stream and fisheries would stand that kind of  
25 an impact.

26 Q Some of it might depend  
27 on recovery rates of the various life species systems.

28 A You would hopefully  
29 have the right-of-way and the disturbance of the  
30 first one fairly well healed up and stabilized before



R. A. Hemstock  
Cross-Exam by Bayly

1 you install the second one.

2 Q And if you were looping  
3 the gas pipeline at the same time that you might be  
4 building -- not you, but somebody else might be  
5 building an oil pipeline you might have some diffi-  
6 culty with that kind of schedul<sup>ing</sup> then I take it?

7 A Yes, although that  
8 situation is one that I would expect not to happen.  
9 I think that there wouldn't be two major programs  
10 underway at the same time, but, that's a possibility

11 Q Well take another one  
12 that may be more likely. Assume that a decision is  
13 made to continue building the highway. Highway  
14 construction maybe going on at the same time as  
15 either pipeline construction or pipeline looping.

16 A Yes, that's a possibility  
17 that there'd be a synergistic impact rather than  
18 just simply additive.

19 Q I suppose one of the  
20 other problems if you were looking for a reason for  
21 a decline in say a population of fish. It might  
22 be very difficult to say it was one project or the  
23 other, or a combination of projects that had added  
24 to the effects?

25 A I think that our  
26 monitoring program would give you a pretty good  
27 indication where the problem lay, although there  
28 might be some -- might be an overlapping concern,  
29 but the monitoring ought to tell you which areas are  
30 being disturbed and to what degree that it's dis-  
turbance effects the life in the water.



R.A. Hemstock  
Cross-Exam by Bayly

1 Q Now, in the Mackenzie  
2 Valley, you contemplate the possibility of a  
3 corridor having a multiplicity of facilities, and I  
4 take it from your evidence on page 2 that you don't  
5 contemplate that having the same positive value in  
6 a multiplicity of facilities crossing the North Slope  
7 of the Yukon.

8 A The Mackenzie corridor  
9 I say it's I think No. 6 in line of the utilization  
10 of that corridor with transportation facilities. I  
11 do not see the same potential or the same probability  
12 that there will be other transportation facilities  
13 to cross the Northern Yukon.

14 Q Quite apart from the  
15 probability, would you recommend that there not be?

16 A I would personally  
17 recommend that there not be a highway across there.  
18 I would recommend that -- I would have to see a lot  
19 more detailed study before an oil line were laid  
20 across there.

21 Q And those are in kind  
22 anyway the reservations that the consultants in  
23 individual areas of biology had on the possibility of  
24 an oil pipeline and a gas pipeline crossing the  
25 North Slope --

26 A Yes.

27 Q -- and you all gave  
28 evidence together.

29 A I think all my advisors  
30 have expressed that kind of a concern.





R.A. Hemstock  
Cross-Exam by Bayly

Q Now, on pages 2 and 3 you do talk about having facilities within a corridor following routes that are as close together as is consistent with the differing engineering constraints and environmental hazards of the two types of pipelines, but not so close together as to bring about undesirable environmental interaction between the two lines. I think the narrow point in the Mackenzie corridor is by previous evidence the Gibson Gap. I'm looking at the Beaufort Delta groups broad corridor, the Gibson Gap is at least included in their corridor as well as being the alignment chosen by Arctic Gas for a gas pipeline. Is there room in that gap for two pipelines to be built side by side, and safely? An oil and a gas pipeline, in your opinion.

A Well, first of all, page 2, that's the government guidelines that I was quoting.

Q Oh, I see. Does that mean your opinion differs from that?

A No, no. No, I think that there is adequate space in the Gibson Gap for both lines but that -- and at the Great Bear crossing is probably where the two lines would be closest together. There's limited areas which appear to be stable along the Great Bear River and probably the two lines would come fairly close together there.

Q And do you see any problems with that crossing having two lines close together?



R.A. Hemstock  
Cross-Exam by Bayly

1                   A     No, I don't think that  
2     there are any problems that are particularly difficult.  
3     I mentioned in the evidence here that you would want  
4     to be sure that the drainage changes or any  
5     problems with stability of one line did not impact  
6     on the other pipeline, and it might require some  
7     very special techniques to make sure that any side  
8     slope area was very well contained or protected. But  
9     there is certainly a wealth of experience in Southern  
10    Canada having oil lines and gas lines cross each other  
11    and so on, so I think they can be constructed fairly  
12    close together, providing care is taken.

13                  Q     Would you recommend a  
14    distance that they should be apart, even at the Gibson  
15    Gap and that crossing, a minimum distance they should  
16    at least be apart?

17                  A     I don't have any recommen-  
18    dations from an environmental standpoint. In my  
19    conversations with engineers, as I recall they thought  
20    something like 500 feet would be desirable.

21                  Q     And that would be as a  
22    minimum?

23                  A     Yes, that would be  
24    a desirable minimum.

25                  Q     Now, on pages 6 and 7  
26    you talk about the difficulty in understanding the  
27    importance assigned by the pipeline guidelines to the  
28    influence of the first trunk pipeline in shaping the  
29    transportation corridor, but I take it from your  
30    other evidence that you do agree that if you're going



R.A. Hemstock  
Cross-Exam by Bayly

1 to efficiently use the airstrips that have been built,  
2 haul roads, gravel pits, that the alignment of that  
3 first pipeline has some of that importance, whether  
4 it is the one that is the least or most likely to  
5 cause the various disturbances?

6 A Yes, it has some import-  
7 ance because the construction of the gas pipeline will  
8 involve construction of some new facilities, and those  
9 facilities hopefully would be of use to the following  
10 installations. So it has some impact. What I'm trying  
11 to get at here is that the pipeline -- the corridor  
12 has already been chosen and we're simply following that  
13 general corridor.

14 Q No argument there.  
15 Further, though, is the Beaufort Delta people have  
16 stated in their evidence that they envisage the  
17 possibility of using gas to help power their oil lines  
18 so where the gas line is maybe fairly important to  
19 any plans that they or some other group may come up  
20 with in terms of --

21 A That's right. It's  
22 desirable to use gas to power the pump units, and the  
23 shorter the lines for that fuel supply, the cheaper  
24 it will be, and less disturbance, too.

25 Q Even though it may be  
26 difficult to see the importance having chosen a  
27 corridor, it still may be within that corridor very  
28 important that the route alignment of the gas pipeline  
29 is one that is complementary to the installation of  
30 an oil pipeline within the vicinity, if the oil line





R.A. Hemstock  
Cross-Exam by Bayly

1 does depend on gas to a certain extent.

2 A I think it's correct  
3 that they should perhaps, as you say, be complementary,  
4 that the source of power, though, of gas from the  
5 gas line is not the only factor. You have to consider  
6 the somewhat differing terrain requirements and the  
7 following oil pipeline project design would try and  
8 optimize all of these factors -- the terrain require-  
9 ments, the river crossings, the supply of fuel, and  
10 the use of facilities which are already there.

11 Q If we took the extreme  
12 case that Arctic Gas had inadvertently chosen a route  
13 alignment that was not at all compatible with the  
14 alignment that an oil line could follow, then that  
15 oil line might have to be powered by other means. Say  
16 for example if it were forced to use the other side  
17 of the river, of the Mackenzie River.

18 A Well, it would run on  
19 the other side of the river, yes, it would have some  
20 other means of power.

21 Q Right, so in that sense  
22 it may be of very great importance in that I gather  
23 the only other means of power, unless they were lucky  
24 enough to find oil that they could use in their  
25 pumping stations, the power would be hydro-electric  
26 power.

27 A Well, it's probably quite  
28 reasonable to assume that some of the oil could be  
29 taken from the line and in a very small process made  
30 suitable for firing turbines.





R. A. Hemstock  
Cross-Exam by Bayly

1 Q That depends though on  
2 the oil that is found?

3 A It depends somewhat on  
4 the quality of the oil, yes.

5 Q That's what happened,  
6 I gather, in the Canol Project that the oil was suitable  
7 for powering pumping stations almost as it came out of  
8 the ground?

9 A Exactly as it came out  
10 of the ground. It was simply taken off the pipeline  
11 and put into the diesel.

12 Q That doesn't happen all  
13 the time?

14 A No, it doesn't but a  
15 turbine is less demanding than a diesel power unit.

16 Q All right. Have you  
17 had discussions with the Beaufort Delta Oil Project  
18 Limited as to how much gas they would hope to use to  
19 power their line? What proportion of the--

20 A No, I haven't had any  
21 discussions.

22 THE COMMISSIONER: Excuse me.  
23 Are they here?

24 A They will be here and  
25 it would be quite a simple matter to work out the  
26 amount of gas required to generate the horsepower for  
27 whatever size line is required.

28 MR. BAYLY: Well, I'll ask  
29 them that and perhaps they'll have an answer to it.  
30 That's all the questions I have. Thank you.



R. A. Hemstock  
Cross-Exam by Veale

1 MR. GOUDGE: Mr. Veale for  
2 the Council of Yukon Indians?

3 CROSS-EXAMINATION BY MR. VEALE:

4 Q Mr. Hemstock, in the  
5 opening page of your introduction, you've stated that  
6 there are three major corridors proposed; the Alyeska  
7 Polar Gas and the Mackenzie Valley. I take it that  
8 this evidence was drafted prior to the Alcan corridor  
9 proposal?

10 A Yes, that's correct.

11 Q So, you would agree that  
12 there is a fourth proposal then?

13 A That's right.

14 Q And the fact that there  
15 is the Alcan proposal, would you not agree that that  
16 does indicate why the first trunk pipeline is considered  
17 to have a great influence on a transportation corridor?  
18 In other words, if the Alcan corridor is selected, that  
19 creates an entirely different situation in the selection  
20 of the Mackenzie Valley-Arctic Gas corridor and that  
21 the first trunk line then is a major consideration in  
22 influencing transportation systems?

23 A I don't agree that there's  
24 this major impact that you're speaking about. The  
25 Mackenzie corridor, if you wish, would still be there.  
26 It still would be a major transportation artery. It  
27 would just not have a gas line in it, if the Alcan  
28 line were chosen.

29 I probably should have  
30 mentioned that the Alcan Highway was another corridor



R. A. Hemstock  
Cross-Exam by Veale

1 and at the time I wrote this, it simply wasn't being  
2 considered as a pipeline corridor. It was a  
3 transporation corridor.

4 Q But would you not agree  
5 that considering all the advantages that you have  
6 outlined in your evidence of having a gas line and  
7 an oil line in the same corridor, that if the Alcan  
8 route is chosen for the gas line, it is likely that  
9 the oil line will follow that corridor as well, for  
10 the various advantages that you have indicated just  
11 recently?

12 THE COMMISSIONER: It is  
13 likely that what?

14 MR. VEALE: The oil line  
15 will follow the gas line in the corridor.

16 A Well, I couldn't agree  
17 with that because the oil that is projected to move  
18 up the Mackenzie is in the Mackenzie Delta and I  
19 would not see it likely that it would go across to the  
20 Alcan Highway to follow that gas line. It seems to  
21 me it would head directly south up the Mackenzie  
22 to tie in with other oil lines in Alberta.

23 Q Well, aren't you just  
24 closing your eyes to the existence of petroleum  
25 reserve number 4 next to Prudhoe Bay? Isn't that the  
26 issue?

27 A I believe that any  
28 additional oil that is found in Alaska will go out  
29 through the Alyeska corridor. I would, at this  
30 moment, find it surprising that a new corridor would





R. A. Hemstock  
Cross-Exam by Veale

1 be chosen.

2 THE COMMISSIONER: Where is  
3 this getting us, Mr. Veale? You're having an  
4 interesting argument with Mr. Hemstock on this subject  
5 and one upon which all of us have views. The Government  
6 of Canada has obviated the necessity for pursuing the  
7 matter because they, in the pipeline guidelines,  
8 have said that so far as the corridors we're considering  
9 are concerned, we're to assume there will be a gas  
10 pipeline and then an oil pipeline.

11 Now, you have an interest in  
12 this Alcan corridor. The corridor is always one that  
13 we have not had referred to us. Suppose Mr. Hemstock  
14 were to agree that if you built the gas pipeline along  
15 the Alcan route, then oil from petroleum reserve number  
16 4 would be delivered to the bed continent along  
17 the Alcan route by our new oil pipeline and would not  
18 go either along the Mackenzie Valley or to Valdez, and  
19 indeed there's every reason to believe the oil that  
20 will be loaded at Valdez will not be going to the  
21 west coast of the United States anyway for reasons  
22 outlined in "Newsweek Magazine" a couple of weeks  
23 ago. It's a confidential source of information.

24 MR. VEALE: Well, Mr.  
25 Commissioner, I won't pursue that. I just had some  
26 difficulty--

27 THE COMMISSIONER: What if  
28 he agrees? Where does it get us? Let's suppose Mr.  
29 Hemstock says I agree, Mr. Veale. Now, what is that  
30 going to tell me?



R. A. Hemstock  
Cross-Exam by Veale

1 MR. VEALE: It was Mr.  
2 Hemstock's logic that concerned me, Mr. Commissioner.  
3 Getting to the interior route, Mr. Hemstock, do I  
4 take it from your comments initially with the  
5 Commissioner that it's your view that the interior  
6 route is less suitable as an ultimate corridor  
7 including other modes of transportation?

8 A Yes.

9 Q Thank you. And this  
10 is because the narrowness of the mountainous terrain  
11 principally and also the river valley, I take it,  
12 The Canning River Valley and so on means a bit of  
13 less flexibility in location of lines.

14 A Yes, that's correct  
15 and then wildlife is there for longer periods of  
16 time than along the coastal route.

17 Q On page 13, of your  
18 evidence you indicated that the socio-economic  
19 consideration in your view was that the presence of  
20 the two facilities provides greater scope for  
21 employment. Would you not agree though that if we  
22 consider looping of a gas line and then we consider  
23 a further construction period for an oil line, that the  
24 social impact on populated areas would be greater  
25 over the long term?

26 A Well, you're saying that  
27 if a high level of activity is to continue over a  
28 longer period of time, there will be a greater social  
29 impact and I would agree with that. I wouldn't agree  
30 that it necessarily has a negative impact. I think



R. A. Hemstock  
Cross-Exam by Veale

1 there's an opportunity for a positive impact if a  
2 fairly high level of activity is maintained over a  
3 long period of time. Longer period of time than what  
4 is described particularly in Alyeska as a boom and  
5 bust cycle.  
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R.A. Hemstock  
Cross-Exam by Veale

1 Q And further on page 17  
2 of your evidence you indicated that the socio-economic  
3 impact of the oil and gas line along the coastal  
4 route would not be great in that area. I take it that  
5 you would agree that there is potential there, if  
6 the disturbance of the Porcupine caribou herd were  
7 to take place as a result of an above-ground line,  
8 that that could have a social and economic impact on  
9 the Community of Old Crow.

10 A Yes, that's right.  
11 If there was an impact on the caribou herd, it would  
12 be felt in Old Crow and in other village settlements  
13 in Alaska, and to some extent there would be the same  
14 sort of a situation with regard to snow geese, which  
15 are migratory.

16 Q Mr. Hemstock, in your  
17 evidence on the environmental monitoring program on  
18 page 2 at the bottom you've indicated that perhaps  
19 there could be some co-ordinating body relating to  
20 monitoring. Now, does that -- does your idea of a  
21 co-ordinating body, does that come into line with some  
22 of the evidence we've heard in the last two days  
23 relating to single agencies to rationalize the process  
24 of inspection and monitoring?

25 A I think perhaps the  
26 principle applies, but I wouldn't think that the  
27 single agency that I've heard being discussed would  
28 be the agency which would be concerned with monitoring.  
29 I think, if I recall the evidence correctly, the  
30 single agency was to be set up and then dismissed





R.A. Hemstock  
Cross-Exam by Veale

1 at the end of construction. Monitoring I would see as  
2 an ongoing process and I would think that an organiza-  
3 tion or an agency like the Canadian Wildlife Service  
4 might be in a better position to co-ordinate monitoring  
5 efforts, being a continuing department of the government.

6 Q Mr. Hemstock, relating  
7 to the area of contingency plans, has Arctic Gas  
8 developed a contingency plan if there is a disruption  
9 of the Mackenzie Valley barge system and say you're  
10 going through the interior route you have to use the  
11 Dempster Highway. Has the company formulated contingency  
12 plans with respect to impact on caribou migration and  
13 the interaction of the highway to caribou?

14 A Again this is not my  
15 area of expertise, but as I recall, the Dempster High-  
16 way does not provide a contingency plan in the event  
17 of difficulty along the Mackenzie River, the barge  
18 system. The material which would need to be moved  
19 by barge would all be on-site or on its way to Hay  
20 River and Axe Point and so on, and by the time any  
21 difficulty was apparent on the river I think it  
22 would be impossible to return that material and get  
23 it up through the highway and on-site to meet the  
24 construction requirements. The contingency planning  
25 then will be to take what measures you need to take  
26 in order to move necessary material down the Mackenzie  
27 either using the highway or winter roads or whatever  
28 may be required to get it on-site.

29 If it were apparent during  
30 more planning that the Dempster Highway and the access



R.A. Hemstock  
Cross-Exam by Veale

1 through say Skagway and Whitehorse were a good way to  
2 supply a portion of the pipeline, then that would be  
3 planned ahead of time and it wouldn't have the same  
4 -- it wouldn't be the same approach as a contingency  
5 plan.

6 Q I see. I was referring  
7 to a recent report that was presented to the Inquiry  
8 by, I think it's called,

9 "Arctic Transport,"  
10 and there was a specific section which indicated that  
11 the applicants were using the Skagway-Dempster Highway  
12 route as a contingency route in the event that there  
13 was a disruption of the Mackenzie Valley transportation  
14 by whatever mode. Is that not the case?

15 A My understanding is that  
16 it's being looked at as an alternative, but it would  
17 not be a contingency plan.

18 Q And I take it then that  
19 the answer is "No, there are no contingency plans with  
20 respect to the caribou on the Dempster Highway.

21 A That's right. That  
22 falls out. We have, as you know, though, had  
23 recommendations from our advisors in that area that  
24 traffic would have to be controlled, that there be some  
25 shutdown if caribou migration was in the area and that  
26 sort of thing, but we have not taken it further than  
27 that.

28 Q Now also in the area of  
29 contingency plans, the problem has been posed, I  
30 think, throughout the Inquiry that there may be storms



R.A. Hemstock  
Cross-Exam by Veale

1 on the North Coast of the Yukon which force ice in  
2 close to shore, thereby preventing barge traffic  
3 from off-loading stock and stockpiling. Are there  
4 any contingency plans in that regard if the construc-  
5 tion scheduling is likely to be thrown off because  
6 of such a natural problem?

7 A Well, as I understand  
8 it, the supply of the material requirements for the  
9 coastal line come from two sources, the Alaska portion  
10 -- I'm not sure just where the break is, coming around  
11 Point Barrow -- the Northern Yukon coming down the  
12 Mackenzie. Now the contingency plan for the non-  
13 arrival of barges around Point Barrow would be the  
14 same as used by some operators at Prudhoe Bay last  
15 year where the material couldn't get around, was  
16 moved back to Southern Alaska and shipped north by the  
17 highway. With regard to Northern Yukon, and it's  
18 a fairly rare instance, if the ice prevented access  
19 along the Yukon, then the material would have to be  
20 landed at some suitable site along the Yukon coast  
21 if it was available -- that might be Shingle Point or  
22 Komakuk -- and transported along the pipeline right-  
23 of-way after freezeup.

24 Q After then the construc-  
25 tion of a snow road, I take it.

26 A That's right, yes.

27 Q Has Arctic Gas done any  
28 contingency planning in the whole area of the suitability  
29 of snow roads? In other words, if snow roads for  
30 some, reason or other are not able to be constructed,





R.A. Hemstock  
Cross-Exam by Veale

1 in time and for the length of time required for the  
2 one-year winter construction, has there been any  
3 contingency planning relating to, you know, borrow  
4 pits and so on to actually construct an all-weather  
5 road?

6 A No.

7 Q So that's just something  
8 that is just out of the realm of possibility, I take  
9 it, from the company's point of view.

10 A Yes. The contingency  
11 planning there deals with the means and methods of  
12 making sure that snow roads are available.



R. A. Hemstock  
Cross-Exam by Veale

Q And let's say that snowroads are available, but, they're not available for the time period anticipated. What about the contingency of spending two seasons on the north slope as opposed to one?

A As I recall the engineering people have dealt with that possibility in front of the National Energy Board and they pointed out that the Northern Coastal route is scheduled for the 3rd winter of construction and that there would be two years of experience before that portion of the line was built. They have pointed out that there are several ways that they could increase the capability or the output in that third winter, and as I recall these, they were to provide additional camp space so that there was no shut down in moving of camps from one site to another., provide additional equipment and additional manpower, joining that during the third winter to be sure that the job could be completed as in the time frame. Now there's been no planning that I'm aware of of extending that third construction into a fourth winter of construction. The contingency planning is towards taking care of the eventualities and being sure it's done in the third year.

Q Back to the idea of a road which the company does not want to build. If it were necessary, has the company determined that there is enough borrow there to construct it?

A We have not looked at



R. A. Hemstock  
Cross-Exam by Veale

1 that, no.

2 Q And from what you've  
3 said relating to, if the problem of completing that  
4 one year construction -- the answer or the response  
5 of the company is not a contingency plan for other  
6 seasons, but simply to bring more men and resources  
7 into that particular segment of the route in that one  
8 winter season?

9 A Yes sir.

10 Q There's also at this  
11 Inquiry, been a great deal of discussion relating to  
12 the problems of natural waterflows and the berm  
13 disrupting these waterflows and so on, and the  
14 possibility of the snow-road melting and causing  
15 ponding and so on and I understand that there has  
16 been suggestions of having culverts constructed  
17 underneath the pipeline itself to ensure that the  
18 waterflow would pass through if that was the natural  
19 direction. I take it you're familiar with this?

20 A Yes.

21 Q Has the company  
22 developed any contingency plans relating to what  
23 would happen if -- if these culverts underneath  
24 were in fact to freeze. Is there any -- is there  
25 any further area or thinking that the company has  
26 done in this respect?

27 A I'm not aware of any-  
28 thing other than the theoretical studies of heat  
29 flow and the like which lead our engineers to believe  
30 that the culverts can be designed so that they will



R. A. Hemstock  
Cross-Exam by Veale

1 remain open and this is a matter of really of the  
2 theory of the amount of heat in the water and the  
3 flow requirements and so on. I don't think there  
4 are any other plans that -- certainly not that I'm  
5 aware of.

6 THE COMMISSIONER: Excuse  
7 me Mr. Hemstock, it's 3:30, I think we could stop  
8 now for a cup of tea.

9 MR. GOUDGE: Can I ask  
10 sir, that we be expeditious for this reason that  
11 the Beaufort, Delta people are here and I promised  
12 them that they could get out this evening.

13 MR. VEALE: You shouldn't  
14 make promises like that Mr. Goudge.

15 MR. HEMSTOCK: If would  
16 be convenient, I could step down and have the  
17 Beaufort, Delta go on and come back to me later.

18 MR. GOUDGE: Let's talk  
19 about that at coffee.

20 (PROCEEDINGS ADJOURNED FOR A FEW MINUTES)





R.A. Hemstock  
Cross-Exam by Veale

( PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

MR. GOUDGE: We're prepared to resume, sir. Mr. Veale is about to conclude his cross-examination.

MR. VEALE: Q Mr. Hemstock, returning to the construction period of one year on the North Slope, has the company ever entertained a contingency plan that would not involve placing more men and resources in the one winter period, but rather commencing that construction period one year earlier so that if there were ultimate problems with snow roads they would have a two-year period to do that construction?

A Sir, I can't be sure whether they have or not, but I suggest that the Arctic construction panel, which I believe will be here tomorrow, includes both Mr. Dau and Mr. Daniels, and they could respond to that question.

Q Do you have any concerns, being aware of the fact that they may put more men and resources onto the North Slope in the one winter construction year, do you have any concerns about the ability of the snow road to sustain the obvious level of use that it would receive?

A No, because the number of passes over any piece of snow road is fixed, it's simply a matter of having more places where activity is undertaken. So I would not see any great difficulty with the added impact in the winter. Pardon me, with an added effort in the winter.



R.A. Hemstock  
Cross-Exam by Veale

Q On your report entitled:

"Arctic Oil Spill and Toxic Material Contingency  
Plan,"

in the preface on page 1 you've indicated that formal discussions have not been held with various co-operative oil spill contingency groups. What groups are you referring to in that paragraph?

A Is this page 1?

Q No, your preface, Mr.  
Hemstock.

A Well, the groups that I would refer to would be DEPU, the Delta Environmental Protection Unit, the Ministry of Transport, and the Department of Environment, all of whom have responsibility or facilities in place for contingency planning. We have had informal talks with, for instance, the producers with regard to their plans which they have in force right now.

Q But I take it you're going to enter into formal arrangements with these contingency groups prior to construction.

A That's right.

Q And with respect to part E on the same page, the technology of spill counter-measures, do you have some information to indicate that there's going to be some improvement in counter-measures and techniques and facilities?

A No, I don't have anything specific except to note that there has been a good deal of work and research in this area in the last



1 oh, say five years, and that that has resulted in  
2 considerable improvement and better knowledge about  
3 contingency planning, and that's a continuing thing  
4 that I anticipate.

5 Q So it's not actually  
6 the actual equipment that you're concerned about,  
7 it's the methods being -- the method planning of  
8 doing it?

9 A And equipment too.  
10 There's improvement in equipment.

11 Q There are improvements  
12 in equipment that have taken place in the last year  
13 or so?

14 A Yes.

15 Q Specifically what would  
16 they be?

17 A Well, better capability  
18 with such devices as oil pickups, I think they're  
19 called "slick-lickers" that go around and pick up  
20 oil on water. Perhaps another aspect in the other  
21 way is a better understanding of the effect of deter-  
22 gents and coagulants or depressants, chemicals, and  
23 the fact that why they may be effective in getting  
24 rid of the oil, and that's not necessarily an environ-  
25 mentally desirable way to do it. A better understand-  
26 ing of absorbants and better absorbant materials to  
27 pick up oil. Those are the kind of things I'm thinking  
28 about.

29 Q But with respect to the  
30 formalizing of discussions and actually ordering





R.A. Hemstock  
Cross-Exam by Veale

1 equipment and so on, cleanup equipment, when is that  
2 going to take place? Is this something that will take  
3 place immediately after approval?

4 A I would think that we  
5 would start with that immediately after approval and  
6 certainly we would have to have some equipment in  
7 place before the start of any field activities.

8 Q Do you have any con-  
9 tingency plans relating to the difficulties you might  
10 have in the quality of monitoring and inspection when  
11 say your aircraft are respecting certain height  
12 limitations imposed on it? In other words, are  
13 you concerned that your monitoring and inspection  
14 may deteriorate and you can't get close enough to  
15 the pipeline to do the monitoring, you know, necessary  
16 to determine cracks and so on?

17 A I think there's a con-  
18 fusion there. The monitoring that I'm referring to  
19 is a monitoring of environmental factors. Some of  
20 it might be done from aircraft; much of it would be  
21 done on the ground inspection. I think you're  
22 referring to pipeline inspection, that is a routine  
23 inspection of the pipeline right-of-way. We would  
24 expect that that inspection would have to be done  
25 certainly in some cases at lower altitudes than  
26 our present aircraft guidelines specify and we would  
27 want to schedule those flights when there would be  
28 a minimum disruption as a result of the lower  
29 altitude. I should point out that as I understand it,  
30 they would require no more than one to two flights



R.A. Hemstock  
Cross-Exam by Veale

1 a month, and we wouldn't see any great difficulty  
2 in that sort of requirement. Monitoring of snow  
3 geese, the monitoring of caribou, that sort of thing  
4 from aircraft, you have flexibility according to the  
5 timing of the flights which you don't necessarily have  
6 to fly on a certain date.

7 Q Am I right in understand-  
8 ing that the company at this point intends to have its  
9 own inspectors during the construction period? Is that  
10 the intent?

11 A Yes, that's the intent.

12 Q And if it were to come  
13 to pass that there were to be a third party or a single  
14 agency as we've discussed in the last day or so, does  
15 that present any management problems to the company  
16 to meld in with that sort of authority as opposed  
17 to doing your own inspection entirely?

18 A No, I don't see any  
19 difficulty. Our own inspection has to be done, in  
20 any event, and that would simply facilitate our co-  
21 operation and co-ordination with the government agency  
22 or regulatory agency.



R. A. Hemstock  
Cross-Exam by Hollingworth

MR. VEALE: No further

questions.

MR. GOUDGE: Mr. Hollingworth  
for Foothills Pipeline?

CROSS-EXAMINATION BY MR. HOLLINGWORTH:

Q Mr. Hemstock, we could  
discuss your monitoring program for a moment. When  
you refer to programs which have been conducted since  
1971, which programs are you referring to?

A Where is the reference  
to that, sir?

Q There's a statement  
about half the way down saying,

"Many of the environmental studies that have  
been carried out by Arctic Gas in '71 will be  
continued as part of the monitoring program".

A Those would refer to  
the monitoring and the research studies of the caribou,  
the research studies on snow geese, two that come to  
mind in particular.

Q Which you mentioned there,  
as well as Chick Lake, would that be an exhaustive  
list or are there a lot more?

A Yes, there are a lot more  
studies which have started out as perhaps data gathering  
studies, for example, in streams and where a return  
to the same site year after year provides a monitoring  
or a chance to check on the changes which have occurred.  
These would include streams along the north coast and  
a few streams which feed into the Mackenzie River.



R. A. Hemstock  
Cross-Exam by Hollingworth

Those are other types of monitoring. There's also the monitoring of vegetation test sites, which were established as many as five years ago and which have been observed each year since.

Q Have you developed your program enough to know how much data you would be looking for from say a particular stream and with what frequency you'd go there?

A No, I think that I would have to rely on the people like Dr. McCart for that. I think it would vary from location to location and it could well be that in some streams, for instance, a rather cursory examination would be all that was required to show that there was no following impact. In other cases, if there was obviously something wrong, there was siltation or something like that, it might take a rather extensive study to determine the amount of impact.

Q What's the overall objective of the monitoring program?

A I think the basic objective is to determine the impact that has occurred as a result of the construction and operation of the pipeline and, of course, it follows then that if that is done correctly, that any additional construction can be done in a better fashion or that changes in operating technique can be initiated which would improve the environmental situation.

Q There's not really too much you can do with the plants you have in place? It





R. A. Hemstock  
Cross-Exam by Hollingworth

1 applies to future installations more than anything,  
2 doesn't it?

3 A It applies to the  
4 installation of the gas pipeline.

5 Q Well, let's suppose  
6 you have your system in place and you have a compressor  
7 station at a certain place, for instance, near Tununuk  
8 Junction and suppose it turns out to bother a good  
9 many birds, much more than you had anticipated, there's  
10 really nothing much you can do about that, is there?

11 A In that particular  
12 instance, presumably the disturbance would be due to  
13 noise and there are methods of cutting down on noise  
14 emissions if that work turned out to be necessary.  
15 If they were some other factors that could not be  
16 mitigated, then obviously that would be a disturbance  
17 that we had not expected.

18 Q The source of information  
19 that will be useful for a further pipeline or perhaps  
20 for looping or something like that?

21 A It could be useful for  
22 additional pipelines or for looping.

23 Q Well, now in your  
24 corridor evidence, you outlined some good reasons why  
25 the Mackenzie corridor should be followed and to a  
26 lesser extent, these considerations applied to the  
27 Yukon corridor. One of them was that it was a natural  
28 corridor to follow and that further installations would  
29 follow that course and that previous installations  
30 had followed that course.



R. A. Hemstock  
Cross-Exam by Hollingworth

1 The same can't be said at all  
2 for the cross-delta route, can it?

3 A I would think so.

4 Q Can you elaborate on  
5 that response?

6 A Well, I think that the  
7 factors which have been considered in the cross-delta  
8 route are the same kinds of factors that are considered  
9 in the route across the northern part of the Yukon.  
10 That is, the type of terrain, the disturbance to  
11 various forms of wildlife, the area across the delta  
12 has been used to some extent certainly for transportation  
13 by barge within the delta. It is also used as a  
14 transportation route east-west by native people. I  
15 don't see it as any difference in principles to the  
16 considerations of a corridor along the northern  
17 Yukon.

18 Q Because the route across  
19 the northern Yukon isn't really following any major  
20 transportation installation other than a few airstrips  
21 for the DEW line.

22 A The airstrips for the  
23 DEW line and the fact that there has been shipping  
24 along the coast and it is a natural transportation  
25 route for northern people and has been for years, but  
26 the utilization has been rather small.

27 Q Yes, but as an  
28 environmentalist, sir, surely the transportation by  
29 barge that has gone on along the coast has little if  
30 no bearing upon what happens to the environment on the



R. A. Hemstock  
Cross-Exam by Hollingworth

1 coast itself and I'm thinking of the caribou herds or  
the nesting birds.

A It would probably have  
4 little or no impact on the caribou. It may well have  
5 impact on some of the water birds that frequent the  
6 lagoons and spits. The fact that shipping has been  
7 moving back and forth across there though is a fact  
8 that it should be considered when looking at the  
9 transportation of the pipe and material into the various  
10 staging areas which we would require.

11 Q But as to history of use  
12 for transportation, there's no question that the  
13 Mackenzie Valley has been used to a far greater extent  
14 than the Yukon coast?

A That's right.

15 Q And you're really  
16 suggesting that any further use of the Yukon coast  
17 stop after your gas line gets in?

18 A I'm suggesting that  
19 any further use of the Yukon coast for an oil line  
20 or for a highway. For the oil line, certainly  
21 additional studies would be required. For a highway,  
22 my personal opinion is that at least in present day  
23 that a highway should not be considered across there.  
24  
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R. A. Hemstock  
Cross-Exam by Hollingworth

Q Okay, but as far as following the Mackenzie corridor you point to the existing transportation facilities, they're already including a partly completed road, barging -- extensive barging traffic, extensive air traffic, telecommunication facilities and say that that would be a logical corridor to follow for a gas pipeline.

A Yes.

Q And for an oil pipeline, it would be all the more logical because the gasline would already be in place.

A I think that would be an important factor for the oil pipeline.

Q And I take it the converse would be true, that if an oil pipeline were in place, then it would be very logical for a gas pipeline to follow it? Because it could use the same facilities, the wharves as you pointed out, and the same airstrips?

A I think that the reverse would be generally true, yes.

Q Then wouldn't the reverse apply over in Alaska, where an oil line is three quarters of the way in place? Shouldn't the gas line follow it rather than break new grounds, following that theory?

A It's a matter of distance and one of the factors which have to be considered. It's a matter of cost. Another factor which I have not studied but which has to be looked



R. A. Hemstock  
Cross-Exam by Hollingworth

1 at, would be the -- whatever problems there might  
2 be in going through the rather narrow mountainous  
3 area.

4 Q Just pursuing the  
5 concepts that you've outlined in your paper Mr.  
6 Hemstock, isn't it far more logical for a gas line  
7 to follow an existing oil line in Alaska? Putting  
8 aside the cost considerations and the other ones  
9 you've raised in your answer just now?

10 A Now I think there are  
11 several other factors which you have to look at,  
12 but certainly the fact that there is a corridor  
13 through the State of Alaska is one of the factors  
14 that has to be looked at.

15 MR. HOLLINGWORTH: Okay,  
16 thanks, I have no further questions.

17 MR. STEEVES: Can I re-  
18 examine on that last question?

19 MR. GOUDGE: Perhaps I  
20 could ask just one question and then give Mr. Steeves  
21 full scope of cross-examination or re-examination.

22 Q Mr. Templeton, let  
23 me ask you if you have any comment on --

24 A Mr. Templeton is down  
25 there.

26 Q I get you and Mr.  
27 Templeton confused constantly Mr. Hemstock. Do you  
28 have any comment on what he said yesterday, which  
29 is that the Beaufort Basin Gas might be more likely  
30 to brought ashore to the Taglu Plant than to the



R. A. Hemstock  
Cross-Exam by Hollingworth

1 coast west of the Delta?

2 A Well the Commissioner  
3 asked, I did take a look at the evidence that Mr.  
4 Templeton submitted and I think that in the Delta  
5 area, one might agree with him, that it -- that any  
6 offshore oil might be brought in or gas might be  
7 brought in to the Taglu area although I think that  
8 each case would have to be examined on its own  
9 merits. The outer part of the Delta is heavily  
10 utilized by birds and I think that you'd have to  
11 be certainly aware of those concerns. Normally any  
12 offshore oil or gas would be taken ashore in the  
13 most direct way possible and I think I would have  
14 a preference to head for the mainland rather than  
15 through the shallows of the Delta, but I think those  
16 would have to be examined individually.

17 And I might comment that  
18 I did -- he mentioned yesterday I think that there  
19 was no advancing of our argument, that the Coastal  
20 Route was preferable because it was more proximate  
21 to potential reserves. We did advance that argument  
22 at the hearings in Whitehorse and their in Volume  
23 51, page 6782 and we still believe that that's the  
24 most persuasive of all of the arguments for the  
25 Coastal Route. Now in Mr. Templeton's evidence,  
26 it wasn't clear to me whether he had considered  
27 the offshore and Coastal potential in Alaska and we  
28 did consider that and I think that that's important,  
29 and as I recall the potential offshore area was  
30 something in the order of 20,000 square miles in



R. A. Hemstock  
Cross-Exam by Mr. Goudge

1 Alaska and the onshore potential was something like  
2 a 100,000 square miles and it would seem to me  
3 logical, that any reserves on the Coastal Plain or  
4 offshore would go much more easily into a Coastal  
5 route than they would into an interior route in  
6 Alaska, but that that factor should be considered  
7 as well as the area and the details which Mr.  
8 Templeton talked about yesterday.

9 THE COMMISSIONER: What  
10 was that reference Mr. Hemstock. I remember the  
11 discussion in Whitehorse but --

12 A I had Volume 51, page  
13 6782 and there was considerable discussion from  
14 then on during -- regarding the offshore potential.

15 MR. GOUDGE: Thank you  
16 sir.

17 THE COMMISSIONER: Yes,  
18 re-examination Mr. Steeves.

19 MR. STEEVES: I have none.

20 THE COMMISSIONER: Well  
21 thank you Mr. Hemstock and in the event that this  
22 is your last appearance as a witness, I can express  
23 my gratitude to you for the co-operation you've  
24 given us and the help you've offered us on each and  
25 every occasion that you've appeared. We're all  
26 very grateful to you.

27 (WITNESS ASIDE)

28 MR. GOUDGE: We have next  
29 the evidence of the Beaufort Delta Oil Project  
30 Limited, Mr. Colin Campbell acts for them and will





1 be presenting their evidence. It consists of Mr.  
2 Wylie and Mr. Lipsett. So perhaps I could ask  
3 Mr. Campbell to come forward and the witnesses too.

4 THE COMMISSIONER: We'll  
5 take sixty seconds off to stretch our legs.

6 (QUALIFICATIONS & EVIDENCE OF T. BUTTERS MARKED  
7 EXHIBIT 838)

8 (EVIDENCE OF R.A. HEMSTOCK MARKED EXHIBIT 839)

9 (PROCEEDINGS ADJOURNED FOR A FEW MINUTES)

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Lipsett, Wylie  
In Chief

(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

HARVEY D. WYLIE,

G. B. LIPSETT, sworn:

DIRECT EXAM BY MR. CAMPBELL:

MR. CAMPBELL: Mr. Commissioner,

as you may be aware, over six months ago I forwarded on behalf of Beaufort Delta the evidence in chief to be given by the witnesses today. As I think you are aware, there have been some rather recent, rather dramatic changes with respect to the ongoing nature of Beaufort Delta and with those thoughts in mind, what I would propose to do is lead the witnesses through their direct evidence but bear in mind there is of necessity going to be some modifications as some of the statements were made over six months ago.

So, with your permission, I would proceed in that fashion.

THE COMMISSIONER: Fine.

MR. CAMPBELL: Mr. Commissioner,

Beaufort Delta Oil Project Limited was incorporated in 1974 for the purpose of planning, designing and doing all preliminary work necessary for applications to construct and operate an oil pipeline from the Beaufort Sea-Mackenzie Delta area to connecting carriers in southern Canada.

However, a decision was made last week by the participants of that project that Beaufort Delta will be phased out of operation by year end. The company appears at this Inquiry at the invitation of Board Council to assist you in endeavors with regard to Section 312 of the 1972 Pipeline



Lipsett, Wylie  
In Chief

Guidelines. The work of Beaufort Delta has been, at all times, in early stages and the company has not examined in detail many of the issues which it feels would be essential to be examined before an application for a permit to construct could be made.

We should also note that there is a pre-condition placed upon the management of Beaufort Delta for the construction on any oil pipeline, namely that sufficient reserves of oil be discovered in the Beaufort Delta area. This condition has not been met and it appears that the area is much more gas prone and hence, the decision has been made to phase out the work of Beaufort Delta.

Now, with these parameters, Beaufort Delta is pleased to assist in any way possible and the evidence will be given by members of the senior management of the project.

Mr. Wylie, would you please describe your position with Beaufort Delta and outline your professional and business experience leading to your present position?

WITNESS WYLIE: My position with Beaufort Delta is that of President. My experience leading into my relationship with Beaufort Delta was a graduate engineer from Montana State College in 1956. Four years with Brown & Root as a design engineer. Five years with the Alberta Gas Trunk Line Company Limited in various capacities of engineering. Six years as president with Pipeline Technologists Canada Limited, a consulting engineering





Lipsett, Wylie  
In Chief

1 firm. The past five years prior to joining Beaufort  
2 Delta as president of Pipeline Technologists  
3 Incorporated, Houston, Texas, an international  
4 consulting firm with over three hundred employees.  
5 For the past year and a half, almost two years,  
6 president of Beaufort Delta.

7 Q Mr. Lipsett, would you  
8 outline your professional and business qualifications  
9 and the work that you have done with Beaufort Delta.

10 WITNESS LIPSETT: At present,  
11 I am acting as director of engineering for the Beaufort  
12 Delta group. I'm a graduate in civil engineering from  
13 the University of Saskatchewan. After graduation I  
14 spent eight years with a small pipeline group in  
15 western Canada called Trans-Prairie Pipelines Limited  
16 as field engineer and ultimately as chief engineer.  
17 I left them and joined Pipeline Technologists. I  
18 spent ten years with them in various capacities starting  
19 as a project manager in Alberta; subsequently became  
20 vice-president of the Canadian company; worked in  
21 other areas of the world including Australia and Alaska;  
22 became a senior vice-president of the U. S. parent  
23 company, at which time I was in charge of special  
24 projects which included Arctic and offshore pipelines.  
25 For the past year and a half I have been director of  
26 engineering at Beaufort Delta.

27 Q Mr. Wylie, I believe you  
28 have an overview of Beaufort Delta which may have  
29 changed since the direct evidence was prepared but  
30 in any event, would you go ahead with that insofar as



Lipsett, Wylie  
In Chief

you're able to.

WITNESS WYLIE: Well, certainly conditions have changed since the direct evidence was filed with this Commission. However, we will go through the filed evidence and as I approach or cover those areas where the changes are, we'll indicate such changes.

Beaufort Delta was formed to study problems of constructing and operate a pipeline system to transport oil from the Beaufort Sea and Mackenzie Delta area to existing oil transportation systems in southern Canada and to carry out all necessary planning, design and preliminary work relating to the project. It will also--it would also have prepared materials required for applications to appropriate regulatory agencies if warranted.

In December, 1974, the five companies signed a participation agreement to initiate the project. Three of the participants are oil companies that have been exploring there since the early 1960's; Imperial Oil Limited, Shell Canada Limited, and Gulf Oil Canada Limited. The others are major oil pipeline companies; Interprovincial Pipe Line Limited and Trans Mountain Pipe Line Company Limited.

With headquarters in Calgary, the company has recently completed its staffing and is now in the process of unstaffing, destaffing and is in the early stages of its work program, which will not progress any further at this time.

While the success of the



Lipsett, Wylie  
In Chief

drilling programs will be the deciding factor and quite obviously with the news release and the statements made by counsel in front of this Commission, they are certainly the decided factor; the company had hoped to put itself in a position to make application sometime in 1979. Obviously this will be delayed until some time in the future.

It is anticipated the construction of any pipeline for the movement of crude oil on the Mackenzie Valley corridor will be preceded by a pipeline carrying natural gas from Alaska and the delta, for which the applications have been filed and regulatory hearings are underway.

The need to supplement existing sources of domestic crude oil may be seen in the National Energy Board's reports on the supply and demands for crude oil in Canada, the most recent of which was issued last September.

It might be interesting to note that there is another hearing scheduled for October of this year.

Some statistics as far as crude oil consumption is concerned, in 1974 Canadians consumed about 1.7 million barrels of oil per day. The National Energy Board estimates that domestic consumption will increase between 3.5 and 4.5 percent per year from now until 1985, depending on response to higher product prices and conservation.

This would put Canada's needs in 1985 in a range between 2.4 million and 2.7 million





Lipsett, Wylie  
In Chief

1 barrels a day. Conventional oil from the western  
2 provinces is supplying those parts of Canada west of  
3 the Ottawa Valley and the pipeline has been built and  
4 line fill of that pipeline has been completed and  
5 crude is going into the Montreal area as of this  
6 date.

7 By the early 1980's, production  
8 from present sources will not be sufficient to supply  
9 these domestic areas. Canada will become increasingly  
10 dependent upon foreign sources of oil unless new  
11 domestic reserves are found, developed and transported  
12 to Canadian consumers.

13 Unlike many countries, Canada  
14 has a significant oil reserve potential, but it is  
15 difficult and increasingly expensive to find and  
16 develop. Some oil has been discovered in the Beaufort  
17 Sea and Mackenzie Delta area, and exploration is  
18 continuing. The initiation of the project is therefore  
19 a first step that could lead to tying these and future  
20 finds into existing crude transportation systems.

21 The value of getting  
22 preliminary studies for an oil line under way now is  
23 to avoid unnecessary delays after it has been  
24 established that enough reserves exist to support  
25 the proposed lines.

26 Beaufort Delta is not the  
27 first group to engage in planning for a crude oil line  
28 along the Mackenzie Valley corridor. The discovery of  
29 huge oil reserves in Alaska in 1968 at Prudhoe Bay,  
30 four hundred miles west of the Mackenzie Delta, led to





Lipsett, Wylie  
In Chief

1 the formation the following year of Mackenzie Valley  
2 Pipeline Research Limited.

3 Participants were sixteen  
4 oil and pipeline companies including all five Beaufort  
5 Delta participants. The earlier group established  
6 that an oil pipeline from Prudhoe Bay to Edmonton was  
7 technically and economically feasible. However, when  
8 the U. S. decided to bring out Prudhoe Bay oil by route  
9 across Alaska, the Alyeska system, the work of the  
10 Mackenzie Valley Pipeline Research Limited was completed.  
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Lipsett, Wylie  
In Chief

Q Mr. Lipsett, I understand there are certain differences between an oil and gas pipeline. Can you outline what these differences are?

WITNESS LIPSETT: There are a number of differences between oil and gas pipelines but the differences which are of concern for northern permafrost regions are those which result from the operating temperatures of the two types of systems. Large diameter pipelines, either oil or gas, tend to be heat generators. In the case of a gas line, it is possible to refrigerate or cool the gas to obtain the most desirable operating temperature at little or no penalty. This is not the case with an oil line. Since the oil line that we are considering will likely operate at temperatures somewhat above the freezing point, it will be necessary in some areas to elevate the line to provide a positive separation between the warm pipeline and certain sensitive permafrost soils. This is the major difference between oil and gas lines which are of concern for northern regions.

Q Mr. Wylie, how did Beaufort-Delta structure itself to perform the work it undertook?

WITNESS WYLIE: Beaufort-Delta established itself to build on work which had already been done through available information from such sources as the Mackenzie Valley Pipeline Research Limited, Alyeska Pipeline Service Company, Canadian Arctic Gas Pipeline Limited, exploration and production activities, government studies,



Lipsett, Wylie  
In Chief

etc. We planned to utilize environmental, geotechnical, hydrological, pipeline and socio-economic experts to assist in reviewing the work. With the assistance of these and other experts, additional studies as required would have been undertaken to ensure that proper consideration of all related aspects specific to this project were incorporated.

Construction input will be obtained at every phase, or would have been obtained at every phase of the work to ensure environmental integrity, cost effectiveness and feasibility of the final design, as well as availability of goods and services on a timely basis. Beaufort-Delta intended that preference be given to Canadian goods and services. Prior to and during construction, Beaufort-Delta would have made maximum use of the facilities of existing Arctic installations and infrastructure such as transportation, communication and logistics.

Q In terms of present-time frame, what are the parameters that would determine the route of an oil pipeline?

A While the general method of locating the pipeline will be outlined later, the actual routing will be influenced by the following major factors:

1. Location of reserves
2. Location of connecting carriers
3. Government of Canada guidelines
4. Findings of the Berger hearings
5. Type of soil and terrain.





Lipsett, Wylie  
In Chief

6. Rivers and water crossings
7. Logistics of movement of supplies, equipment and people.
8. Animal migration routes, and habitats
9. Environment
10. Economics
11. Ability to build, operate and maintain a sound and efficient pipeline.

Q Mr. Lipsett, I understand that Beaufort-Delta had in recent months done some work on a preliminary basis for the selection of a pipeline route. Can you tell us, please, how your company proceeded to carry out that study?

WITNESS LIPSETT: The route selection was organized following a multidisciplinary approach as indeed it was for all of our project major tasks. These major tasks, if I may, represent the logical steps which must be completed to support the application which we had anticipated. Our first task was to select from a number of potential routings between the oil reserves and a southern terminus, a route study area approximately 28 kilometers in width in which it was agreed that the pipeline could be built with minimum impact. Specific guidelines were agreed upon by all disciplines to ensure consideration of a number of socio-economic environmental and cost factors. These guidelines are attached as Appendix 1 to the direct evidence. To arrive at this selected route study area, consultants expert in environmental geotechnical, land use, pipeline design and construction,



Lipsett, Wylie  
In Chief

1 and river hydrology, considered and recommended  
2 independently their preferred route study areas based  
3 on specific guidelines agreed upon by disciplines. The  
4 individual consultant recommendations were reviewed  
5 by the entire Task Force and after an extensive process  
6 of analysis, reached a consensus of a route area which  
7 was basically acceptable to all consultants.

8 The maps attached as Appendix  
9 2 delineate the route study area and any questions,  
10 specific questions we can deal with as we go along.

11 Q Mr. Wylie, maybe you  
12 could just outline, please, some of the other  
13 studies that had been undertaken by Beaufort-Delta  
14 and those that it planned to do in the future.

15 WITNESS WYLIE: Well, Beaufort-  
16 Delta at the time that the direct evidence was submitted  
17 to this Commission was also in the process of establish-  
18 ing a budget for the remainder of this year. The budget  
19 for Beaufort-Delta was at that particular time  
20 reduced significantly, which had a direct impact on  
21 the work that could be performed by Beaufort-Delta from  
22 the middle of March onward for the remainder of 1976.  
23 However, Beaufort-Delta had performed preliminary  
24 systems studies covering pipeline sizes of 24-inches  
25 through 48-inches in diameter. With the limited infor-  
26 mation that we had, we selected a 36-inch diameter  
27 pipeline to study further. This size appeared to allow  
28 us the greatest flexibility for the ranges of through-  
29 put that may have been produced from the source area.  
30 Using this pipeline diameter and within the pipeline



Lipsett, Wylie  
In Chief

1 route which would have been selected in the future,  
2 we would have developed the pipeline design criteria  
3 by which we would have identified both above and below  
4 ground construction modes, support configurations,  
5 and select winter and summer construction sections. Of  
6 major importance in our planning will be the recommenda-  
7 tion adopted by the government as a result of the work  
8 of this Commission. Our staff had studied and was  
9 examining all data available from the Mackenzie Valley  
10 Research Pipeline Limited, the Canadian Arctic Gas  
11 Pipeline Limited, and government studies, and when  
12 completed would have ascertained what additional studies  
13 would have been necessary to determine the impact of  
14 an oil pipeline throughout this area.

15 Much of this work would have  
16 been ongoing in nature during the period of gas pipeline  
17 construction and by the time that that line had been  
18 completed we would have a great deal more useful infor-  
19 mation.

20 Q Mr. Wylie, based on your  
21 present knowledge, do you anticipate that an oil  
22 pipeline would be compatible with a gas line within  
23 the Mackenzie Valley corridor?

24 A Yes, I do.

25 MR. CAMPBELL: Mr. Commissioner,  
26 that completes the evidence in chief of the witnesses.

27 MR. GOUDGE: Sir, Mr. Bayly, of  
28 The Committee For Original Peoples Entitlement, will  
29 lead off the cross-examination.



Lipsett, Wylie  
Cross-Exam by Bayly

1 MR. BAYLY: I don't have  
2 very many questions.  
3

4 CROSS-EXAMINATION BY MR. BAYLY:

5 Q Perhaps you can tell me  
6 in relation to page 3 and the answer to the last  
7 question on that page, you have said that in some  
8 areas it will be necessary to elevate an oil pipeline  
9 if it follows the -- an alignment somewhere in the  
10 corridors, in the corridor that you have attached on  
11 the maps. Can you give me an idea either of the  
12 percentage or of the types of terrain in which the  
13 pipeline would have to be elevated?  
14  
15  
16  
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Lipsett, Wylie  
Cross-Exam by Bayly

WITNESS LIPSETT: I can't give you a percentage right now. We've been dealing with percentages that change almost daily since we issued this document, and that's because we have been in the process of analyzing the terrain. Our consultants have been identifying the land forms as to aerial extent and type, taking the information that's available from locals in the area to determine what the possibility or the likelihood and extent of settlement might be for a land form in a given region, and we have in fact divided the pipeline corridors as you see it here into six separate regions for geotechnical analysis, and I can tell you this much that in the first area we looked at, which was roughly from Parsons Lake to Campbell Lake, we had a --

Q Could you pull the microphone a little closer, because I'm having a little trouble hearing you?

A -- in the area from Parsons Lake to Campbell Lake, which was our first geotechnical region, for examination we had originally concluded that it might be possible to bury as much as 20 or 25%. We now conclude it would be unlikely that we would bury any of the pipeline through that region except in isolated instances where we could take advantage of soil conditions for animal passage and they would be of short length.

Q And those kinds of soil, I take it, would be ones that are well-drained coarse-grained material.



Lipsett, Wylie  
Cross-Exam by Bayly

1 A That is correct.

2 Q So --

3 A There are a few areas in  
4 there that have ground moraines that have those  
5 characteristics.

6 Q -- with those exceptions  
7 and perhaps farther up the valley you'd be looking  
8 at the same kinds of soil before you could bury the  
9 pipeline. Wherever there was fine-grain, ice-rich  
10 soil, the pipeline would have to be elevated.

11 A That's right. The pro-  
12 blem, as you well know, would be excess ice.  
13 However, the problem does become a little more manage-  
14 able as you proceed south down the valley, and as a  
15 matter of fact, we are seeing now that the possibility  
16 of burial increases quite dramatically once we get  
17 south of Thunder River.

18 Q And when you're going  
19 through intermittent areas of permafrost can you  
20 give me an idea of how small an area it is worth burying  
21 the pipeline in, how small a piece of the pipeline  
22 length?

23 A Part of the study that  
24 we are conducting right now includes construction cost  
25 estimates which are considering that very problem,  
26 and I don't have that answer for you at this time.  
27 I suspect that we would be looking at fairly long  
distances to be economical to bury.

28 Q Can you bracket it? Is  
that, in miles or in tenths of miles?



Lipsett, Wylie  
Cross-Exam by Bayly

1 A No, in hundreds of feet.

2 Q In hundreds of feet.

3 Now, one of the differences, I take it, between an  
4 oil and a gas line, quite apart from the fact that the  
5 oil will be at temperatures above the freezing point  
6 of water, is that except in extraordinary circumstances  
7 where the oil is of such a quality and consistency  
8 that it can be used directly in powering the pumping  
9 stations, an alternate source of energy must be used  
10 in order to push the oil along the pipeline. Is that  
11 correct?

12 A That's correct.

13 Q And in that you have  
14 several options. You can either refine some of the  
15 oil before putting the bulk of it into the pipeline  
16 and use that, you can use gas if you're close to a  
17 gas pipeline, or you can use hydro-electric power.  
18 Is that correct?

19 A Those are possibilities,  
20 yes.

21 Q Are there other  
22 possibilities that I've left out?

23 A The only one that comes  
24 to mind would be electric power generated from thermal  
25 installation and powered by coal.

26 Q Now, of these power  
27 sources and in the corridor that you've outlined on  
28 the maps, what sources of power have you considered  
29 at this stage?

30 A Our basic assumption has





Lipsett, Wylie  
Cross-Exam by Bayly

1       been that our stations will be gas-powered.

2                               Q       And I asked this question  
3       of Mr. Hemstock earlier, and he referred me to you.  
4       What quantities of fuel, given the -- and I guess we  
5       don't really even have a size for the pipeline.  
6       Let's take a size for a pipeline of 42 inches, what  
7       quantity of oil -- sorry, of natural gas would be  
8       required to pump the oil through the pipeline?

9                               A       I don't have those  
10       figures with me. We have a range of numbers which re-  
11       flect the various buildup rates of crude throughputs  
12       through pipeline, and the figures don't readily come  
13       to mind. If they're required, we could perhaps  
14       produce them at a later date.

15                              Q       If that is the major  
16       source of fuel that you would contemplate using to  
17       power your pumping station, then the alignment of the  
18       gas pipeline is something that you want to follow as  
19       closely as you can, given the geotechnical consider-  
20       ations that are different.

21                              A       Given geotechnical  
22       and hydraulic considerations.

23                              Q       But ideally, if you  
24       can locate it as close as possible to the gas pipeline  
25       you save money and fuel in powering your pumping  
26       stations.

27                              A       Yes, being very  
28       careful about the proximity problem, of course.

29                              Q       Yes, and that's something  
30       that we have heard a little bit about from Mr.



Lipsett, Wylie  
Cross-Exam by Bayly

Hemstock with regard to, for example, the Great Bear River crossing, if you were to cross the Great Bear River, his geotechnical people and construction people say they would like to have a minimum 500-foot distance between the two crossings of the two facilities. Is that a number that you have heard, or that your company shares as a minimum distance?

A We haven't really dealt with the river crossing problems to the extent where we would identify a separation, a minimum separation between oil and gas pipeline crossings. But certainly no closer than 500 feet.

Q He referred to that one in particular because it's a river which is very difficult to cross except in a very few places, and you might well have to be almost that close.

A I think we're more likely to be several miles apart. As a matter of fact, in the brief studies that we have made of crossing that particular river, we are in fact several miles apart.

Q Now, your evidence seems to be partly based on a gas pipeline going up the Mackenzie Valley prior to the oil pipeline. Let's assume that for some reason that that doesn't turn out to be the case, that one of the Yukon or Alaskan projects gets the nod first, as Mr. Blair says it might, and an oil pipeline preceded a gas pipeline. What would be your next preferable supply of energy to run your pumping stations?



Lipsett, Wylie  
Cross-Exam by Bayly

1 A In view of our current  
2 situation, I'm having a little trouble with your  
3 assumption; but --

4 Q Well --

5 A -- we would go to a  
6 liquid fuel preferably.

7 WITNESS WYLIE: If it was  
8 available.

9 WITNESS LIPSETT: When I  
10 say "a liquid fuel" I am referring now to middle  
11 distillates which we would probably manufacture our-  
12 selves.

13 Q Now, what about hydro  
14 power generated by water, is that something that  
15 you have considered?

16 A No sir. We have not,  
17 although conversations were held with the Northern  
18 Canada Power Corporation on this subject, and we got  
19 very little encouragement from them on the timing of  
20 such availability of such energy, so we didn't  
21 pursue it any further.



Lipsett, Wylie  
Cross-Exam by Bayly

1 Q You say there was a plan  
2 a foot at one time to put three dams in the Great Bear  
3 River to provide hydro electric power and I wondered  
4 if that was something that you had considered as a  
5 source of power for your pumping?

6 A No sir, we had not.

7 Q Now on page 4 of your  
8 evidence in answer to the second question on that  
9 page, you talk about 11 considerations that have to do  
10 with the location of an oil pipeline. I take it that  
11 we could add perhaps to that, a twelfth one which would  
12 be the power supply if it were the gas pipeline that  
13 preceded the oil pipeline?

14 WITNESS WYLIE: A Yes, I  
15 think we could add that to an additional item in there.  
16 That's fine.

17 Q Could you say that again  
18 please, because it's not coming through the microphone.

19 A That could be added as  
20 an additional.

21 Q Yes. On the ones that  
22 you have got, I take it that the first one, the location  
23 of the reserves determines whether your oil pipeline  
24 would go just to the Delta and directly offshore or  
25 if oil were found for example off the north slope of  
26 the Yukon, you might well consider applying to put a  
27 pipeline into at least part of that corridor.

28 A I would suggest that in  
29 a normal routing situation, you would look to where the  
30 reserves are located. In this particular instance, our





Lipsett, Wylie  
Cross-Exam by Bayly

1 terms of reference were with the Mackenzie Valley on  
2 the east side of the Delta was a location for a gath-  
3 ering system in our terminal, our initiating point of  
4 the pipeline.

5 MR. HOLLINGWORTH: Excuse me  
6 Mr. Bayly, I'm having difficulty following this con-  
7 versation. I have great difficulty hearing Mr. Wylie  
8 and I didn't even hear you when you mentioned the  
9 point that could be added to the points listed on page  
10 4. I wonder if you -- if Mr. Wylie could repeat what  
11 that twelfth point would be?

12 A I think that Mr. Bayly  
13 suggested that the availability of fuel from a gas line  
14 could also have an effect on the routing. I said yes  
15 it could.

16 MR. BAYLY: Q In other words  
17 you wouldn't consider the other side of the river from  
18 a gas line, unless they were forced there by terrain  
19 considerations?

20 A That's a possibility.

21 Q And as you say, you  
22 would go to the sources of supply. I take it, it would  
23 be possible if oil were found off the north slope of  
24 the Yukon to bring that by feeder line rather than  
25 by trunk line unless there were such a large quantity  
26 that --

27 A It would depend on the  
28 relationship of the reserves in one area versus the  
29 other area and what became the trunk line, yes, and  
30 what was a feeder line.



Lipsett, Wylie  
Cross-Exam by Bayly

1 Q And you're keeping, I  
2 gather, or have been keeping close contact with what's  
3 going on in this and the other Inquiries with regard  
4 to reservations people have had about oil lines on  
5 the north slope of the Yukon?

6 A Yes, we have.

7 Q Including the consultants  
8 of the applicant, Arctic Gas?

9 A Yes.

10 Q Were you at the stage  
11 of evaluating that as a possibility yourselves, that  
12 is, using -- of using the north slope as a corridor  
13 for an oil pipe line?

14 A No, we were not. We  
15 were not charged with that responsibility at all.  
16 They're not the terms of reference.

17 Q So you haven't enter-  
18 tained any thoughts of bringing American oil from --  
19 petroleum for or any other route across the north  
20 slope of the Yukon?

21 A No sir.

22 Q That doesn't mean it  
23 isn't a possibility, it's just not something you  
24 consider?

25 A I would think if there  
26 was a line built down the Delta, it would be an al-  
27 ternative for shipment through the Alyeska.

28 MR. VEALE: I'm sorry. I  
29 didn't catch the last comment you made Mr. Wylie.

30 MR. BAYLY: Could you repeat



Lipsett, Wylie  
Cross-Exam by Bayly  
Cross-Exam by Veale

that last answer please, sir?

A I believe you asked if we could anticipate some movement of north slope crew, and I said if a line was built down the Mackenzie Valley, that it could be an alternative to future discoveries on the north slope as opposed to moving through Alyeska but we have not studied that at all. Does that answer your question Mr. Bayly?

Q Yes it does. Those are all the questions I have. Thank you very much.

MR. GOUDGE: Mr. Veale, of the Council of Yukon Indians.

CROSS-EXAMINATION BY MR. VEALE:

Q Mr. Wylie, you spoke of on the same page, page 4 of these factors and the eighth factor is annual migration route. Did you make any specific studies in this regard other than what has already been done by Canadian Arctic Gas and Foothills?

A No sir, we did not.

Q And I take it that your final comment on page 6, that -- when you said an oil pipeline was compatible with the gas line in the Mackenzie Valley corridor, you were not in any way linking that up with corridors across the Yukon Territory?

A No, we were not.

MR. VEALE:

I have no further questions.

MR. GOUDGE: Mr. Hollingworth of Foothills Pipeline.





Lipsett, Wylie  
Cross-Exam by Hollingworth

1 CROSS-EXAMINATION BY MR. HOLLINGWORTH:

2 Q Mr. Wylie, I believe that  
3 Imperial Oil has a major interest in Interprovincial  
4 Pipeline, isn't that right?

5 A I believe that's true.

6 Q Do you know what percentage  
7 that is?

8 A Just in round numbers, I'd  
9 only be guessing, somewhere 30 percent I suppose.

10 Q And what about in Trans-  
11 mountain Pipeline?

12 A A very minor interest.

13 Q And do Gulf or Shell have  
14 any interest in either of those two pipelines?

15 A I think so. I do not  
16 know the figures.

17 Q And of course Gulf, Shell  
18 and Imperial Oil are all participants in the Arctic  
19 Gas project?

20 A Yes, they are.

21 Q Now the idea of your  
22 appearing here to speak to this concept, was, as I  
23 understand it, to mesh the proposed gas pipeline with  
24 any proposals no matter how vague they were with  
25 the Beaufort Delta Project, just to see where they tied  
26 in and what your plans were in relation to where gas  
27 pipelines were going to go. Would that be a fair state-  
28 ment?

29 A We're appearing here at  
30 the request of Judge Berger and the Commission to give



Lipsett, Wylie  
Cross-Exam by Hollingworth

our -- any information we have concerning a crude oil pipeline system.

Q Now you've stated in your previous testimony and answers to questions by counsel that the -- you stated in your previous testimony and in answers to questions by counsel that the proximity of a fuel supply for your pumping stations could have a bearing on your route?

A It could with other considerations, geotechnical and access to existing facilities. It would not be the single overriding factor.

Q No, but it's a point and it's also a point that you've mentioned on page 7 of Appendix I.

A Yes.

Q Point 2, point 3, point 29 that you're interested in a gas pipeline route?

A That's right.

Q And on your map, the maps that you've shown, you've shown a proposed corridor that the Beaufort, Delta route might take, and you've shown the proposed alignment of the Arctic Gas route.

A Yes sir.

Q You haven't shown the Foothills route?

A No sir, we haven't.

Q What's the reason for that?

A The main reason is it



Lipsett, Wylie  
Cross-Exam by Hollingworth

1 primarily, I believe, follows the route of the Arctic Gas  
2 one.

3 Q Have you checked into  
4 that?

5 A No sir, we have not.

6 Q You haven't had dis-  
7 cussions with Foothills to inquire about that?

8 A No sir.

9 Q Wouldn't it have made  
10 sense to make inquiries and put that down as well?

11 A You might also note that  
12 we've included the highway on here.

13 Q Pardon me?

14 A I say, we also have  
15 included the highway on here.

16 Q Yes, and which makes  
17 the question all the more logical to me, why didn't  
18 you include Foothills?  
19  
20  
21  
22  
23



Lipsett, Wylie  
Cross-Exam by Hollingworth

1 A It was not my direct  
2 intention to not include them, I suppose. They are  
3 an applicant. We could have included them. We did  
4 not include them.

5 Q In fact, sir, didn't  
6 you have discussions with Foothills in order to discuss  
7 the corridor phase and the evidence to come before this  
8 Commission in order to discuss the mutual problems  
9 of the company?

10 A Did I have discussions  
11 with them?

12 Q Wasn't it proposed to  
13 you, sir, that such discussions take place?

14 A It was proposed, yes it  
15 was.

16 Q And you declined that?

17 A I declined that because  
18 we had not established our overall corridor at that  
19 particular time.

20 Q But you've surely had  
21 discussions with Canadian Arctic Gas?

22 A Not directly, no. These  
23 have been picked up off of alignment routes that have  
24 been filed with not only the Commission here but in  
25 Ottawa with the National Energy Board.

26 Q So, you haven't had  
27 discussions with Arctic Gas?

28 A No, we have not.

29 Q Not any sort of discussions?

30 A No, sir.





Lipsett, Wylie  
Cross-Exam by Hollingworth

MR. HOLLINGWORTH: Okay. I have no further questions.

MR. GOUDGE: Mr. Steeves, Canadian Arctic Gas?

MR. STEEVES: I have no questions, sir.

THE COMMISSIONER: You're on. You got on this.

Could I ask why you say that--just taking ourselves back to March, why do you say that this project of yours, at a time when you assumed sufficient reserves of oil to proceed, was dependent on the Arctic Gas proposal apart from the fact that you have the same sponsors, I understand that, but you weren't proposing to duplicate their line across the north coast.

I think Mr. Wylie, you said on page two, I think--maybe I've got you wrong there. Did anybody know the passage I'm speaking of?

A I said that I thought we would be--one of our assumptions was that we would follow a gas pipeline. Is that what you're referring to?

Q Yes, but I thought you said--it's late in the afternoon and maybe I wasn't following you. I thought there was a passage in your evidence in which you said that the whole project was dependent on the Arctic Gas project.

A No, sir. I think I said



Lipsett, Wylie  
Cross-Exam by Goudge

1 that it was dependent--it was assumed for the purposes  
2 of our study and our application that a natural gas  
3 pipeline would precede this oil pipeline.

4 Q Right. Okay, sorry.  
5 I misunderstood. Well, that's logical what you just  
6 said and I don't know why I got that other notion fixed  
7 in my head.

8 CROSS-EXAMINATION BY MR. GOUDGE:

9 Q Mr. Wylie, I take it  
10 that as a result of more recent information, there now  
11 appeared to be inadequate reserves to make your project  
12 immediately viable. Can you give us any estimate as  
13 to timeframes in the future when it might become  
14 viable or is that simply a hypothetical beyond purview.

15 A I could quote the recent  
16 Imperial Oil submission to the National Energy Board  
17 as to what their current thinking is and they are  
18 exploring in that area and if you'd care to have that  
19 quoted--

20 Q I'd be grateful if they  
21 had something to say on that issue.

22 A It refers to the  
23 Beaufort in this submission.

24 "Imperial's studies indicate that transporting  
25 oil from the Beaufort can most practically and  
26 economically be accomplished by pipeline. At  
27 least one billion barrels of economically  
28 recoverable oil must be found and delineated  
29 before an oil pipeline can be justified. We  
estimate about a seven year lead time is required



Lipsett, Wylie  
Cross-Exam by Goudge

1 following establishment of this threshold  
2 reserve level before production will begin.  
3 Imperial's exploration experience and assessment  
4 to date of the Beaufort Basin indicates that  
5 this threshold will not likely be reached in  
6 time to justify a pipeline by 1995. Therefore,  
7 as a base case, no oil production has been  
8 assumed during the forecast period to 1995".

9 Q And would that opinion  
10 take into account the drilling presently being done  
11 offshore in the Beaufort Basin?

12 A I'm sure it does.

13 Q If there were a line  
14 built to carry oil along the present proposed Arctic  
15 Gas route from Alaska to the Mackenzie Valley and  
16 then down, would it become economic to transport the  
17 minimum quantities of oil now found in the delta on  
18 a piggyback? That is, is piggybacking oil as  
19 economic as we're told it is for gas? I assume it is.

20 A You cannot piggyback  
21 oil with natural gas.

22 Q No, but you can piggyback  
23 it with oil?

24 A You can piggyback it  
25 with oil if there was enough oil in Alaska or along  
26 the Yukon coast. Certainly, yes.

27 Q Now, in developing the  
28 programs that you did for your project, did you engage  
29 in any examination of construction methods for an  
30 oil line in the north?





Lipsett, Wylie  
Cross-Exam by Goudge

1 A We were just getting into  
2 analyzing the construction methods, although we were  
3 well aware of the procedures and techniques used on  
4 Alyeska's system.

5 Q Is it your view that the  
6 construction of an oil line down the Mackenzie Valley  
7 would require an all-weather road, as it was used in  
8 Alyeska?

9 A No. We do not anticipate  
10 an all-weather road would be required to build an  
11 oil line down the Mackenzie.

12 Q It could be built off  
13 snow roads?

14 A Yes, sir.

15 Q I take it--well, let me  
16 ask this; the elevation of the line would be conducted  
17 with the use of vertical support members. Is that  
18 the terminology?

19 A Yes, sir.

20 Q And those pieces of  
21 equipment require technology that can be used on snow  
22 roads?

23 A Yes, sir.

24 Q In general, is the  
25 building of an elevated line in that way more labour  
26 intensive than the building of a buried line?

27 A Our initial indications  
28 are yes, it is more labour intensive.

29 Q Is there any way of  
30 quantifying that? Is it twice as labour intensive?



Lipsett, Wylie  
Cross-Exam by Goudge

1 A Now, here again, we were  
2 just getting into that and I cannot quantify it for  
3 you.

4 Q The reason I ask is  
5 that I read in the newspapers the large numbers  
6 involved in building the Alyeska project and I wonder  
7 whether those large numbers are necessitated simply  
8 through it being an oil line requiring the vertical  
9 support member technique?

10 A Well, it would certainly  
11 add to the normal pipeline spread contingent. There  
12 is some slight reduction because you're not using  
13 some other pipeline equipment, but I think in general  
14 you can suspect there will be an increase in the  
15 number of people employed.

16 THE COMMISSIONER: Well, when  
17 the Alyeska project was first proposed, the proponents  
18 said they would need about six thousand to eight  
19 thousand people to build it, but then they assumed  
20 they could bury it. Soil tests over a period of years  
21 led them to the conclusion they had to elevate most  
22 of it which is the way it's being built now and that  
23 we are told is one of the principal reasons why there  
24 are twenty-four thousand, not six thousand people  
25 employed building it.

26 I think the other factor was  
27 that the terminal at Valdez, they found they had to  
28 hire a lot more people than they expected. I'm drawing  
29 on my recollection of the evidence of Mr. Boorkman  
30 who was called by Arctic Gas and the evidence of other



Lipsett, Wylie  
Cross-Exam by Goudge

1 Alaskan witnesses, but I can--when you take a look  
2 at those elevated support members in Alaska, you can  
3 see that you need a few people to put them up.

4 MR. GOUDGE: What about  
5 gravel usage, Mr. Wylie or Mr. Lipsett? Is the  
6 gravel usage in the construction of an oil line more  
7 than or less than the gravel usage required for a gas  
8 line?  
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Lipsett, Wylie  
Cross-Exam by Goudge

1                   A     Well, that one is very  
2 difficult to answer. As Mr. Lipsett indicated earlier  
3 to Mr. Bayly, we were very early in the game in trying  
4 to determine what was above-ground or what we could  
5 anticipate as being above-ground, and what would be  
6 below-ground, and we were also at the point of  
7 saying what could we construct in the wintertime and  
8 what could we construct in the summertime, which had  
9 two different gravel requirements?

10                   In addition to that is what  
11 is our location? What is the availability of access  
12 roads that would be already there? Would we have to  
13 build additional access roads, and that analysis has  
14 not been arrived at yet. The only perhaps indication  
15 of the magnitude of gravel that might be required in  
16 any particular operation, and George, I think, can  
17 verify this for me, per mile of the pad if we had  
18 to use a pad for the construction we'd use in the  
19 neighborhood of 40,000 cubic yards, that's assuming  
20 about 48 feet wide by five feet and four feet in depth,  
21 four or five feet in depth. An access road, on the  
22 other hand, some 24 feet by four feet in depth would  
23 require somewhere around 30,000 cubic yards per mile.  
24 That's approximately the level at which we arrived at  
25 this stage.

26                   Q     Yes. Had you arrived  
27 at a decision, did you say, as to how much you would  
28 be building in the summer and how much you would be  
29 building in the winter?

30                   A     No, we have not.





Lipsett, Wylie  
Cross-Exam by Goudge

Q I take it you contemplated a major pipe-laying to be done in the winter both for buried and elevated portions of the line, and perhaps facilities like river crossings could be built in the summer. Is that generally the approach you were taking?

A We were hopeful that our analysis would show that we could construct certain portions of the line in the summertime.

Q Off a gravel work pad.

A Off a gravel, or if the conditions warranted it, right off the ground itself at certain locations.

Q Is a gravel work pad necessary to construct an elevated line?

A No, I don't think so, if we -- and we believe you can construct a pipeline elevated in the wintertime off a snow road.

MR. GOUDGE: Thank you. Those are all the questions I have, sir.

I should say before I close, sir, that these gentlemen and Mr. Campbell are here at our request and we really are grateful for their presence.

THE COMMISSIONER: By the way, the Mackenzie Valley Research were proponents of an oil pipeline in the early '70s, calculated they would need 30 million cubic yards of gravel to build that pipeline, and that is essentially the same figure Arctic Gas has given us regarding the gravel they



Lipsett, Wylie  
Cross-Exam by Goudge

1 say they will need to build their gas pipeline. I'm  
2 really saying that for Mr. Goudge's benefit and the  
3 Inquiry staff who review these transcripts. I'm not  
4 suggesting --

5 WITNESS LIPSETT: If I might  
6 make a comment, Mr. Commissioner. Those numbers were  
7 based on assumptions that are quite different than the  
8 assumptions that we have made. First of all, they  
9 had assumed that they could bury a great deal of that  
10 line. Secondly --

11 Q They'd assumed what?

12 A They had assumed that  
13 they could bury a great deal of that line, much more  
14 than I think is actually possible. Secondly, they had  
15 planned, as Alyeska has done, to work from a gravel  
16 work pad, and therefore the volumes were necessarily  
17 higher than what we would contemplate.

18 THE COMMISSIONER: Right,  
19 thank you. Well, thank you, Mr. Wylie and Mr. Lipsett.  
20 We certainly appreciate your taking the trouble to  
21 come up here before closing the doors, and I think it's  
22 appropriate that we should have heard from you before  
23 we completed our work. We're closing our doors next  
24 Friday and the evidence you've given us is valuable and  
25 it certainly allows us to conclude our work, confident  
26 we haven't overlooked the work of your group. So  
27 thank you again.

28 WITNESS WYLIE: Well, thank  
29 you sir. I'm hopeful that the information we have been  
30 able to furnish you is useful and timely.

(WITNESSES ASIDE)



1 THE COMMISSIONER: Well,  
2 thank you, and thank you, Mr. Campbell.

3 Well, does that conclude --

4 MR. GOUDGE: Sir, I would  
5 propose that we begin tomorrow at ten o'clock.

6 THE COMMISSIONER: O.K., fine,  
7 ten o'clock then.

8 (QUALIFICATIONS & EVIDENCE OF MESSRS. LIPSETT  
9 & WYLIE MARKED EXHIBIT 840)

10 (PROCEEDINGS ADJOURNED TO OCTOBER 7, 1976)  
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347  
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AUTHOR  
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